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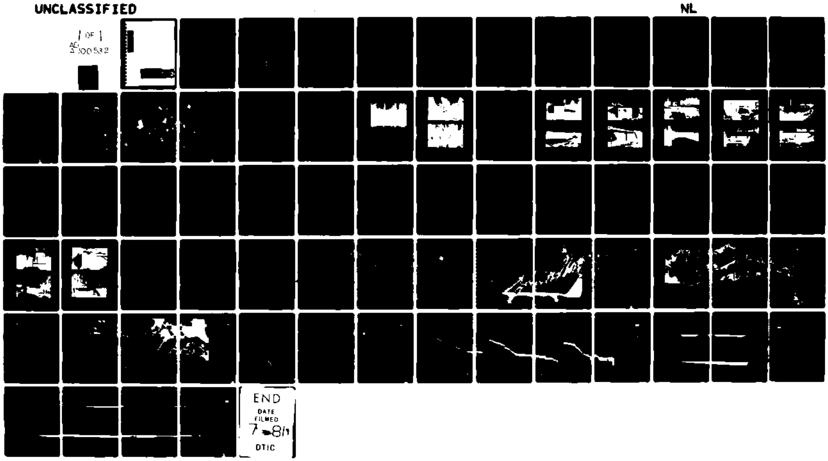

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# REPORT DOCUMENTATION PAGE

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|---|---|---|
| 1. REPORT NUMBER | 2. GOVT ACCESSION NO. AD-A100532 | 3. RECIPIENT'S CATALOG NUMBER |
| 4. TITLE (and Subtitle) Flood Plain Information Little Black Creek, Town of Gates, Chili and Ogden, Monroe County, New York. | | 5. TYPE OF REPORT & PERIOD COVERED Final |
| | | 6. PERFORMING ORG. REPORT NUMBER |
| 7. AUTHOR(s) | | 8. CONTRACT OR GRANT NUMBER(s) |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Engineer District, Buffalo 1776 Niagara Street Buffalo, New York 14207 | | 10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS |
| 11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Engineer District, Buffalo 1776 Niagara Street Buffalo, New York 14207 | | 12. REPORT DATE 1975 |
| | | 13. NUMBER OF PAGES 29 |
| 14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) | | 15. SECURITY CLASS. (of this report) |
| | | 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE |

16. DISTRIBUTION STATEMENT (of this Report)

Distribution Unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Floods
Flooding
Little Black Creek

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report on the Little Black Creek Flood Plain within the Town of Chili, Gates, and Ogden in Monroe County has been prepared because a knowledge of flood potential and flood hazards is important in land use planning and for management decisions concerning flood plain utilization. This report presents a brief history of flooding and identifies those areas subject to possible future floods. Special emphasis is given to the impact of possible future floods through maps, photographs, profiles, and cross sections. This report does not provide solutions to flood

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problems; however, it does furnish a basis for the adoption of land use controls to guide flood plain development and thereby prevent intensification of the losses due to flooding. It will also aid in the identification of other flood damage reduction techniques such as flood control works and flood proofing of existing structures which may become a part of a unified flood plain management (FPM) program.

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## TABLE OF CONTENTS

## TABLE OF CONTENTS (Cont'd.)

### FIGURES

## TABLE OF CONTENTS (Cont'd.)

### TABLES



### PLATES

## *PREFACE*

*This report on the Little Black Creek Flood Plain within the Towns of Chili, Gates, and Ogden in Monroe County has been prepared because a knowledge of flood potential and flood hazards is important in land use planning and for management decisions concerning flood plain utilization. This report presents a brief history of flooding and identifies those areas subject to possible future floods. Special emphasis is given to the impact of possible future floods through maps, photographs, profiles and cross sections. The Report does not provide solutions to flood problems; however, it does furnish a basis for the adoption of land use controls to guide flood plain development and thereby prevent intensification of the losses due to flooding. It will also aid in the identification of other flood damage reduction techniques such as flood control works and flood proofing of existing structures which may become a part of a unified flood plain management (FPM) program. Other FPM program studies -- those of environment attributes and the current and future land use role of the flood plain as part of its surroundings--would also profit from this information.*

*Under the continuing authority provided in Section 206 of the 1960 Flood Control Act as amended, this report was prepared in response to a request from the New York State Department of Environmental Conservation.*

*Upon request, the Corps of Engineers, Buffalo District Office, will provide technical assistance to Federal, State, and local agencies in the interpretation and use of the data presented as well as planning guidance and further assistance, including the development of additional technical information.*

## BACKGROUND INFORMATION

**Flood Plain Studied**

The portion of Little Black Creek included in this study is shown on the Basin Map, Plate 1. Drainage areas contributing to runoff at locations in the study areas are shown in Table 1.

**TABLE 1 - DRAINAGE AREAS**

| Little Black Creek | Drainage areas sq. mi. |
|---|---|
| At mouth at Genesee River at mile 0.0 | 18.75 |
| Upstream of the Penn Central Transportation Co. at mile 0.12 | 15.00 |
| Upstream of Chili Avenue at mile 2.57 | 11.42 |
| Upstream of Penn Central Transportation Co. Bridge at mile 4.98 | 9.80 |
| Upstream of Coldwater Road at mile 5.17 | 6.57 |
| Upstream of Buffalo Road at mile 7.21 | 4.86 |
| Upstream of Union Street at mile 9.36 | 1.90 |
| At Vroom Road at mile 11.95 | 0.29 |

The area studied includes those sections of the flood plains along Little Black Creek in Monroe County. The portion of Little Black Creek within the study area extends from its mouth at the Genesee River (stream mile 0.00) to Vroom Road (stream mile 11.95).

**Settlement**

When the first Europeans arrived, the Little Black Creek basin, as well as the entire Genesee River basin, was controlled by the Seneca nation, one of five Indian nations which then comprised the Iroquois Confederacy. The French were the first to explore the area. They were defeated in the French and Indian War of 1759, and lost control of the land and the fur trade to the English.

The first settlers in the basin were Joseph Morgan and Colonel Josiah Fish who came to the Chili region in 1792 and 1796. John Harford settled in the Gates region in 1800. George Colby and several brothers named Colby were the first settlers of Ogden in the early 1800's.

The basin is part of the land purchased by Phelps and Gorham in 1788. Development within the basin caused the Towns of Gates (1812), Ogden (1817) and Chili (1822) to emerge. Gates lost land many times; once to form the new Town of Greece (1822), and from annexations by the City of Rochester. Rochester annexations took place in 1834, when Rochester was incorporated as a city, and in 1843, 1850, 1874, 1891, 1901, 1914, and 1919.

**Weather**

The entire Little Black Creek watershed is subject to local storms of the cloudburst type. However, the St. Lawrence storm track is the source of a large portion of the rainfall in this area. Cyclonic systems progressing from the interior to the Atlantic Ocean through the St. Lawrence Valley transport moisture from the Gulf of Mexico which is precipitated en route. The average annual precipitation is about 32 inches with little variation over the basin.

**Population and Existing Development**

Population trends for the Towns of Gates, Chili, and Ogden are shown on Figure 1.

Urbanization in the upper two-thirds of the watershed consists mainly of frontal site development along the established highway system with subdivisions located adjacent to West Side Drive and Whittier Road. The remaining lower third of the watershed is characterized by extensive frontal development and subdivision tracts which are located on the headwaters of tributaries. The Rochester-Monroe County Airport is situated within the northeastern part of the watershed. The overbank areas along the lower reaches of the creek are wood covered. Numerous other wooded areas mark the undeveloped area of the watershed. Remaining open lands can generally be considered agricultural. The existing land use is shown on Plate 2.

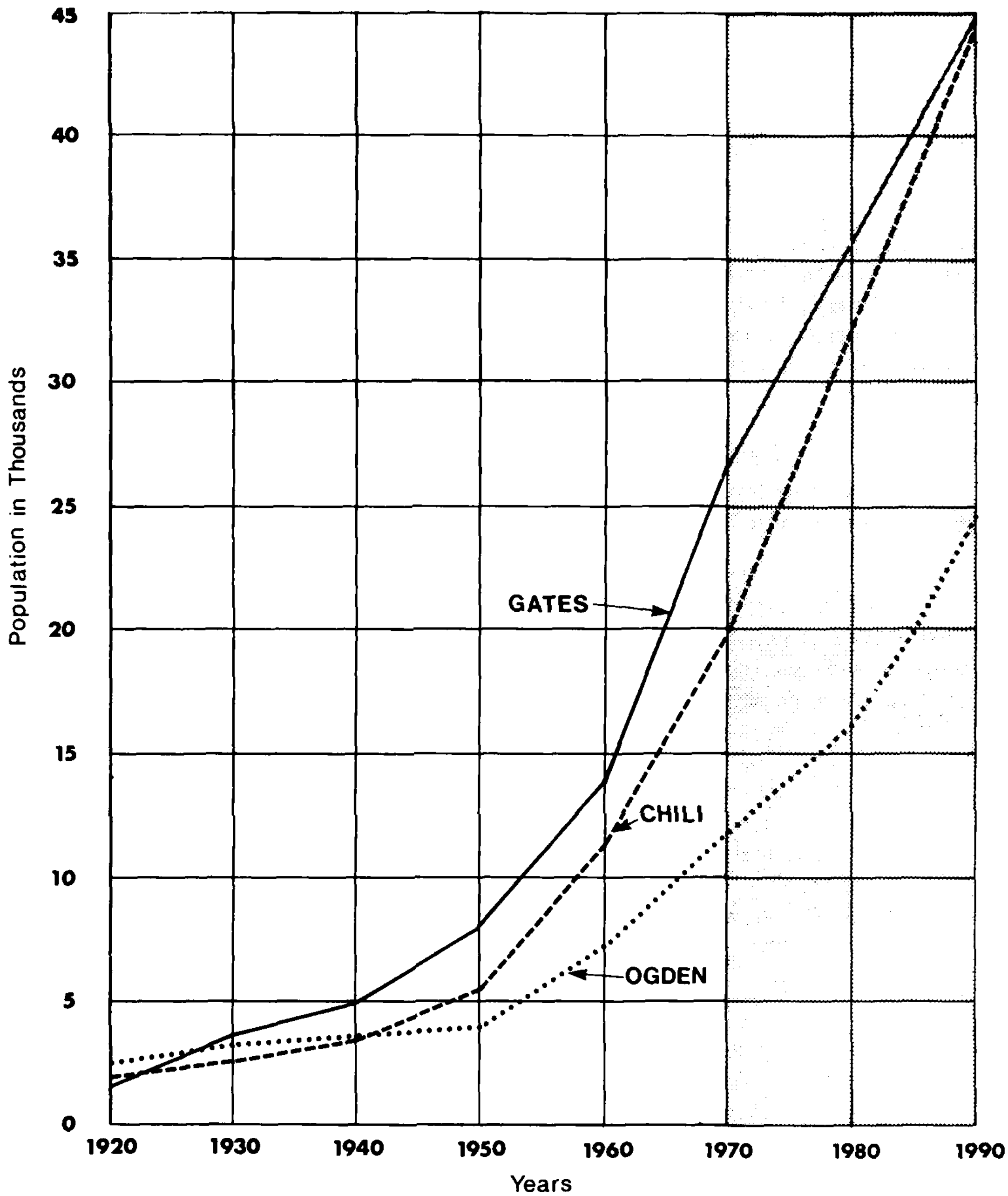
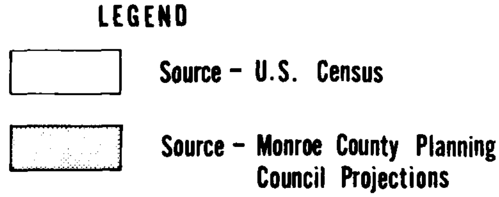



FIGURE 1 – POPULATION TRENDS

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**FLOOD PLAIN INFORMATION**
**LITTLE BLACK CREEK**
**MONROE COUNTY, N.Y.**

AUGUST 1975

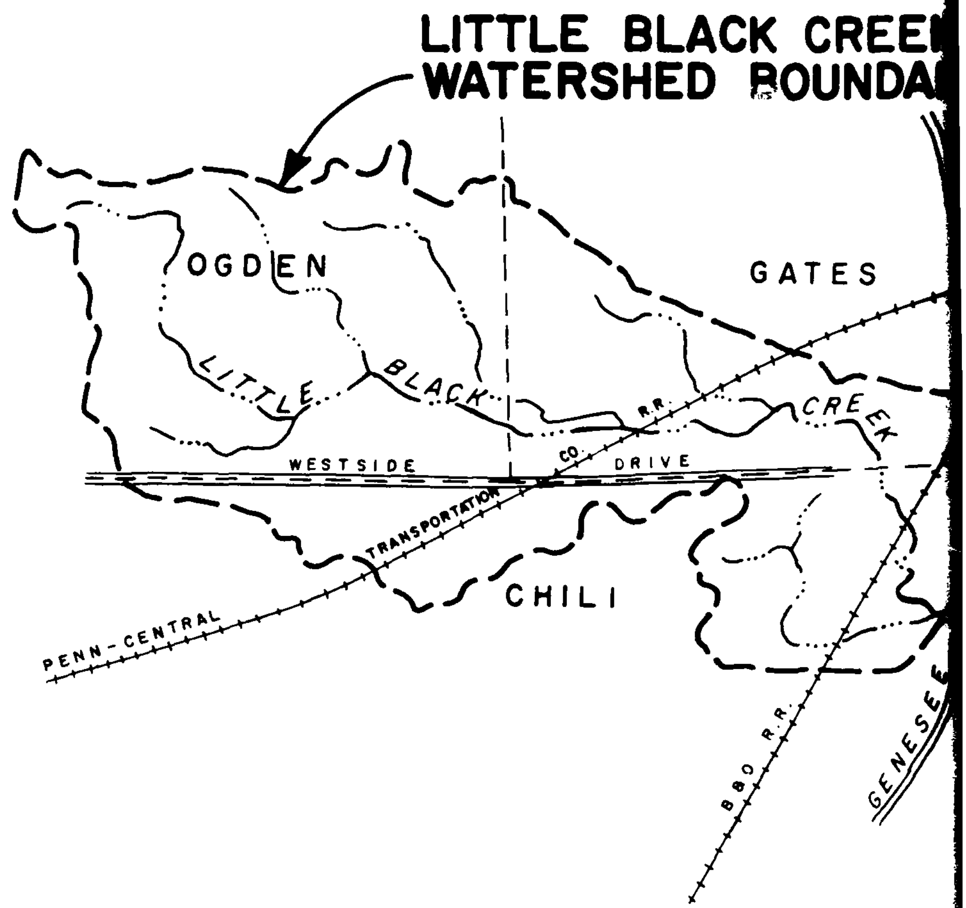
**The Stream and Its Valley**

The Little Black Creek watershed is located in the Towns of Chili, Gates and Ogden. The watershed is located north and east of the Black Creek watershed with the northerly divide joining the Long Pond, Buck Pond, and Round Pond watersheds and with the eastern boundary of the watershed being the Genesee River. The total drainage area of the watershed is 18.75 square miles of which 31 per cent is located in the Town of Chili, 24 per cent is in the Town of Gates and 45 per cent in the Town of Ogden. There are no villages or hamlets within the Little Black Creek watershed.

The topography of the watershed may be described as moderate to rolling. The stream pattern is clearly defined with pronounced valleys south of Chili Avenue and shallow streambeds to the north.

Wetlands in this watershed appear to have no degree of value to waterfowl. Nevertheless, these wetlands have possible reservoir value to surface runoff storage and base streamflows. The Gates-Chili-Ogden Sewer District treatment plant is located within the watershed and discharges effluent into the Genesee River.

The watershed's drainage pattern is defined by Little Black Creek and its tributaries. From its confluence with the Genesee River (mean bed elevation 507 feet), the main stream rises to an elevation of 610 feet in a distance of 12.0 miles. The stream system primarily conveys natural surface runoff. Natural drainage factors appear to be unfavorable with additional complications in the lower reaches where the Genesee River creates backwater conditions.

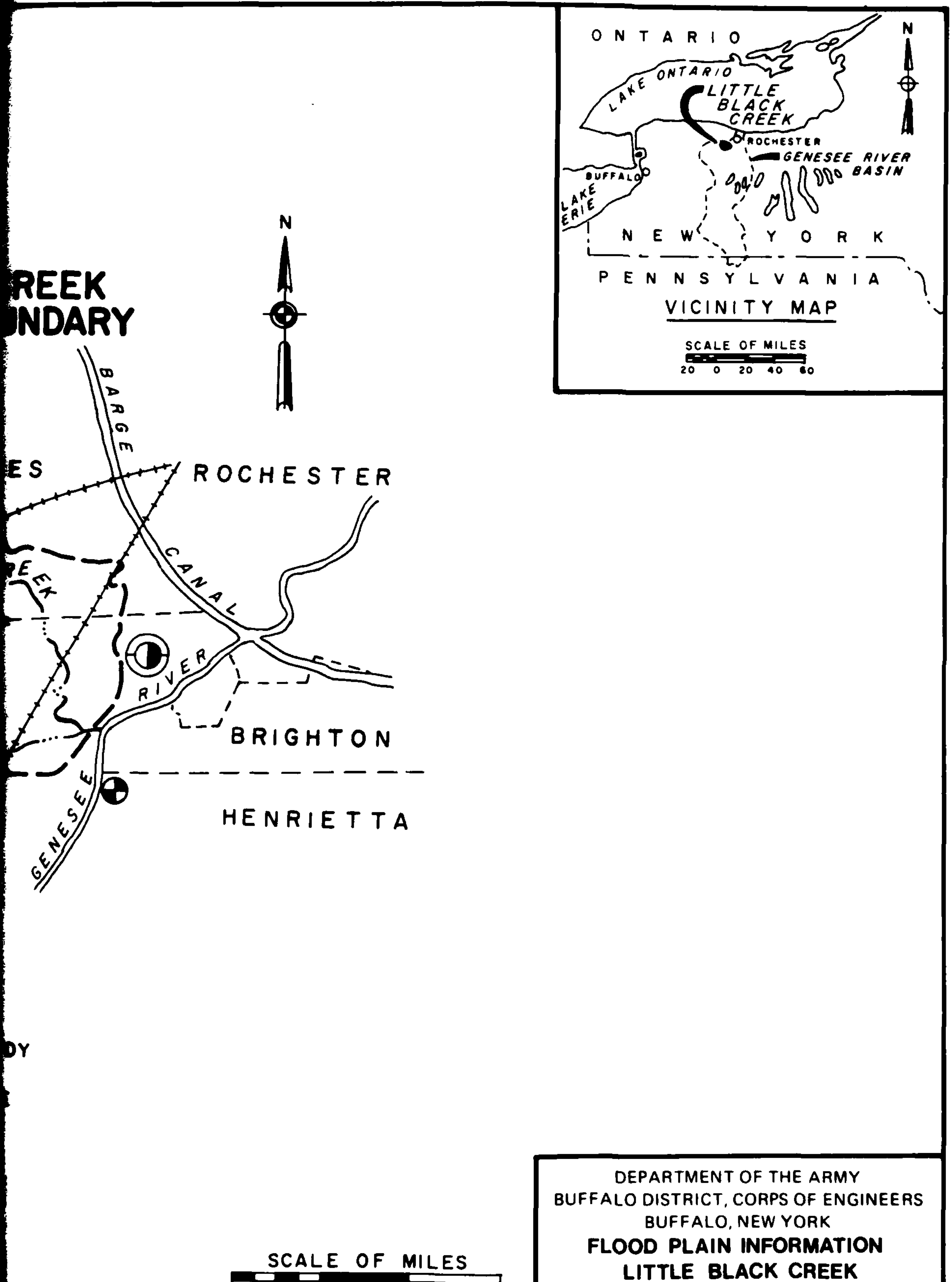



LEGEND

INDICATES REACH COVERED BY THIS STUDY

U.S.G.S. WATER-STAGE RECORDING GAGE

ROCHESTER WEATHER STATION

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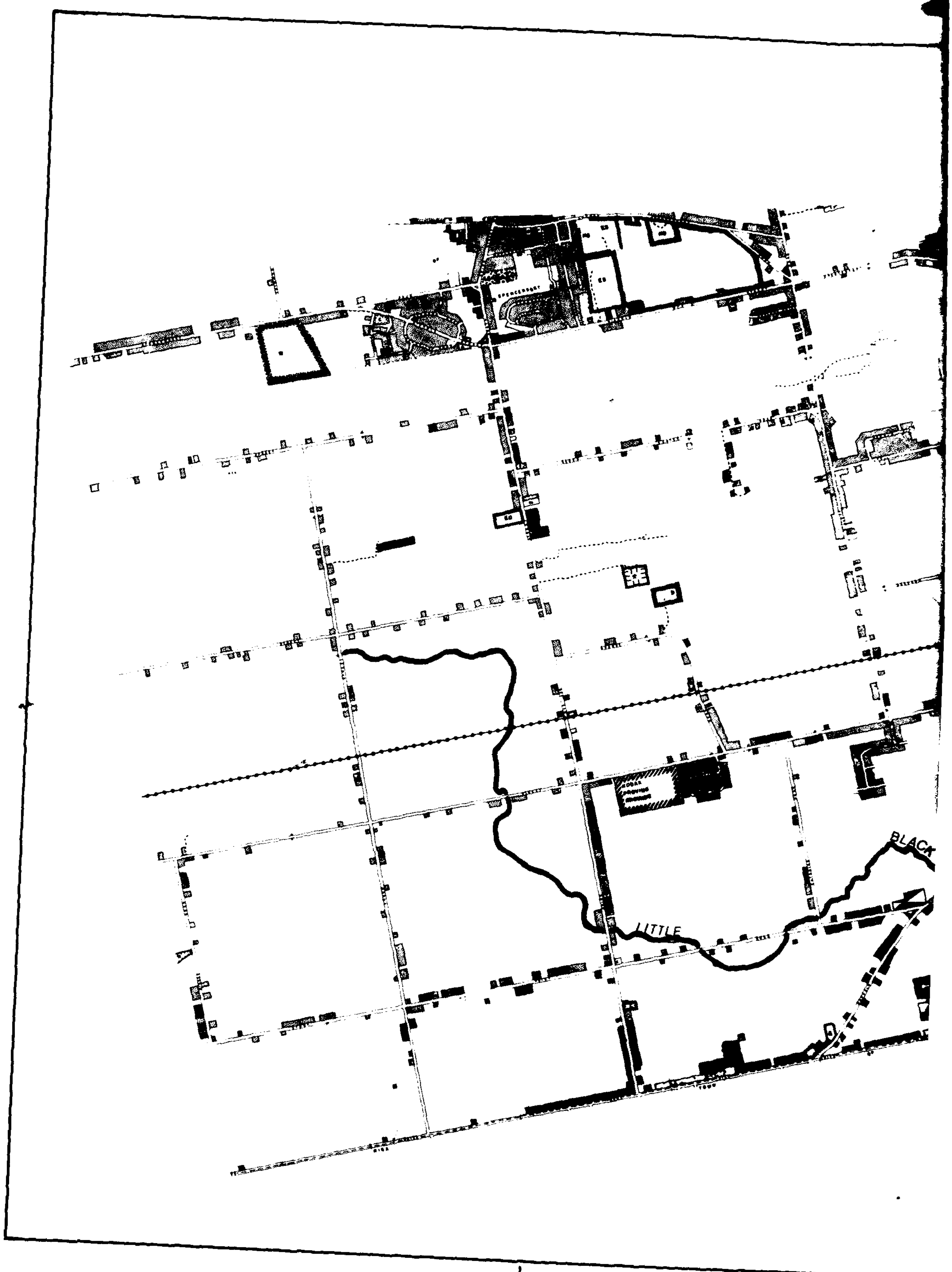
**FLOOD PLAIN INFORMATION**
**LITTLE BLACK CREEK**
**MONROE COUNTY, N.Y.**

**BASIN MAP**

AUGUST 1975

PLATE 1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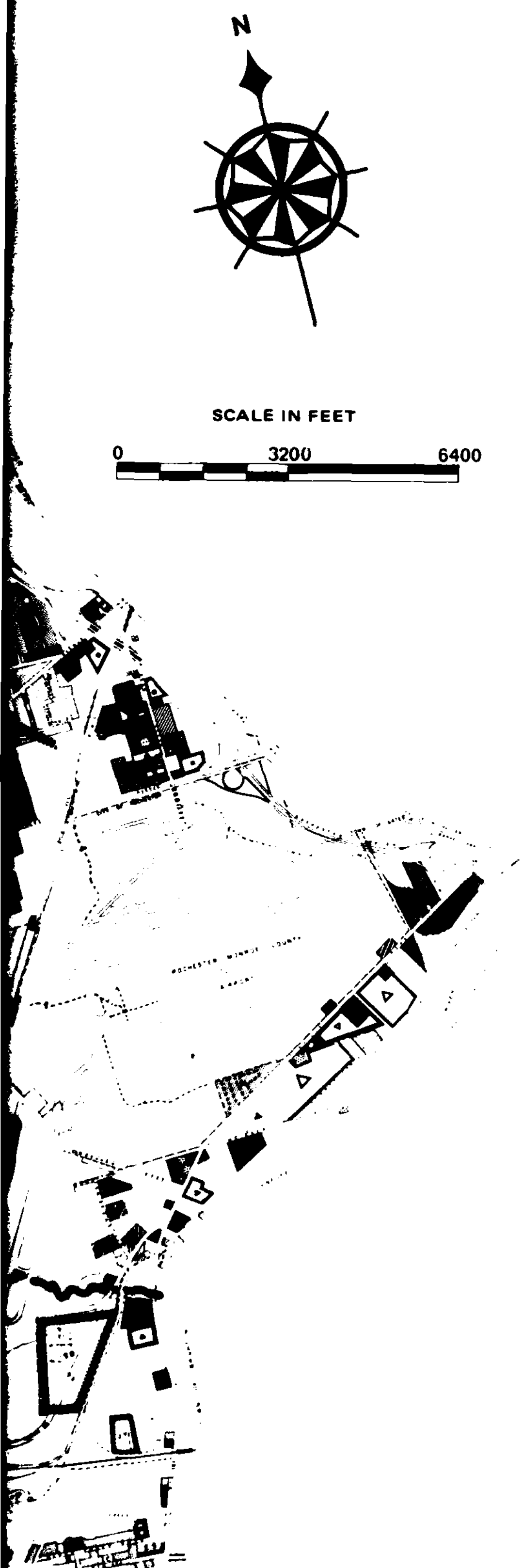


## LEGEND

- ONE AND TWO – FAMILY DWELLINGS
- MULTI–FAMILY DWELLINGS
- TRAILERS AND TRAILER PARKS
- RETAIL STORES AND PERSONAL SERVICE SHOPS
- AUTO SALES, REPAIRS, AND SERVICE
- GARDEN STORES AND COMMERCIAL GREENHOUSES
- OFFICES
- HOTELS AND MOTELS
- COMMERCIAL RECREATION – OUTDOOR
- COMMERCIAL RECREATION – INDOOR
- HEAVY COMMERCIAL GENERAL SERVICES, BUILDING MATERIALS AND CONTRACTORS' YARDS
- WHOLESALE, WAREHOUSES, AND STORAGE
- FREIGHT TERMINALS
- JUNK YARDS (JY) AND DUMPS (D)
- QUARRIES AND GRAVEL PITS
- MANUFACTURING – NON-DURABLE GOODS
- MANUFACTURING – DURABLE GOODS
- PUBLIC BUILDINGS SCHOOL (S), ADMINISTRATION (A), POLICE (P), FIRE STATION (F), LIBRARY (L), POST OFFICE (PO), EQUIP STORAGE (EQ)
- SEMI–PUBLIC BUILDINGS SCHOOL (S), CHURCH (C), HOSPITAL (H), CLUB (CL), CHARITABLE INSTITUTION (INST)
- PUBLIC UTILITIES WATER (W), GAS (G), ELECTRIC (E), RADIO (RD), SEWAGE DISPOSAL (SD), TELEPHONE (T)
- AIRPORTS
- CEMETERIES
- PUBLIC PARKS
- OTHER OPEN SPACE
- WATER AREAS
- AGRICULTURAL OR VACANT LAND

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**FLOOD PLAIN INFORMATION**

**LITTLE BLACK CREEK**
**MONROE COUNTY, N.Y.**

**LAND USE MAP**

AUGUST 1975

## FLOOD SITUATION

**Data Sources and Records**

Newspaper files, historical documents, and records were searched for information concerning past floods. Very few records of past flooding exist. When floods did occur in the Little Black Creek Basin, they apparently were not as newsworthy as the often corresponding floods on the adjoining Genesee River which typically received broad coverage in the media.

Field surveys were performed to obtain the necessary hydraulic information, and field investigations were conducted to obtain essential flood plain information such as high water marks, flow obstructions, and existing and planned development.

Information obtained in the field was then studied and analyzed to produce computational data which could be utilized in a computer program to determine flood stages.

**Flood Season and Flood Characteristics**

Major floods can occur on Little Black Creek during any season of the year. Floods within the Little Black Creek Basin result when excessive overland runoff concentrates in the tributaries. The magnitude of the main stream's flood crest and discharge is dependent on the tributaries crests and discharges.

Excessive runoff in the Little Black Creek watershed results from one of the following conditions: (1) a collision, over the watershed, of a large mass of warm moisture-laden air from the South Atlantic or Gulf Regions with a mass of air of low temperature from the north; these are also known as "fronts". (2) Spring floods which are normally the result of sharp rises in temperature which melt the snow cover of the basin, being frequently accompanied by rains, and (3) localized thunderstorms.

**Factors Affecting Flooding and Its Impact**

**Morphologic-Hydraulic Conditions**--It is impossible to separate flood plains from the streams themselves in order to consider their hydrologic and hydraulic aspects. All streams have flood plains along their entire length, although their width may vary from zero, in reaches where the stream banks have perpendicular side slopes, to thousands of feet in nearly flat plains. The behavior of Little Black Creek during flood situations is deter-

mined by both the physical properties of the normal flow channels and the physical properties of its respective flood plains.

The physical characteristics of the Little Black Creek basin do not vary considerably between the upstream and downstream sections. An important influence in flooding in the basin is the wide flood plain from Coldwater Road to Whittier Road. During high flows there is a significant reduction of discharge downstream of this area because of the flood plain's storage characteristic.

Under natural conditions flood waters in excess of channel capacity spread out over valley lands and build the flood plains by depositing sediment, thereby relieving the river channels of part of their load. All future encroachments onto the Little Black Creek flood plain should be carefully studied to assess their impact upon existing flood plain conditions and future flood stages.

An important consideration is the influence of the abandoned Penn Central Transportation Co. Bridge near the mouth. The creek passes under the railroad through an undersized culvert. During periods of high discharges the combination of the undersized culvert and the high embankments exert a dam-like influence on the flow. At high flows there is a significant reduction of flow through the culvert causing water to pond on the upstream side of the crossing. Figure 2 is a view of the upstream side of the abandoned Penn Central Transportation Co. Bridge.

**Figure 2 - The abandoned Penn Central Transportation Co. embankment rises 13 feet above normal pool elevation, mile point 0.12. Photo taken April, 1975.**

**Obstructions to Flood Flow**--Natural obstructions to flood flows include trees, brush and other vegetation growing along the stream banks in floodway areas. Man-made encroachments on or over the streams such as dams, bridges, and culverts can also create more extensive flooding than would otherwise occur. Fiqures 3 and 4 illustrate typical natural obstructions in the Little Black Creek floodway.

Figure 3 - Typical natural obstructions across Little Black Creek, mile point 1.35. Photo taken April, 1975.

Figure 4 - Typical natural obstruction across Little Black Creek, mile point 8.33. Photo taken April, 1975.

During floods, ice, trees, brush, and other vegetation growing in floodways impede flood flows, thus creating backwater and increased flood heights. Trees and other debris may be washed away and carried downstream to collect on bridges and other obstructions to flow. The debris plugs the bridge or culvert entrances and retards flood flows. These retarded flood flows produce additional upstream flooding, erosion around the culvert entrances and bridge approach embankments, and possible damage to the overlying road bed. When masses of debris break loose, the debris and impounded water surge downstream until another obstruction is encountered. Debris may collect against a bridge until the load exceeds its structural capacity and the bridge is destroyed.

In general, obstructions restrict flood flows and result in overbank flows and unpredictable areas of flooding, destruction and damage to bridges and culverts. It is impossible to predict the degree or location of the accumulation of debris; therefore, for the purposes of this report, it was assumed that there would be no accumulation of debris at any of the bridges or culverts. Photographs of typical bridges crossing Little Black Creek are shown in Figures 5 through 14.

Figure 5- View of downstream side of Scottsville Road bridge, mile point 0.02. Photo taken April, 1975.

Figure 6 - View of upstream side of Rochester-Monroe County Airport culverts, mile point 0.71. Photo taken April, 1975.

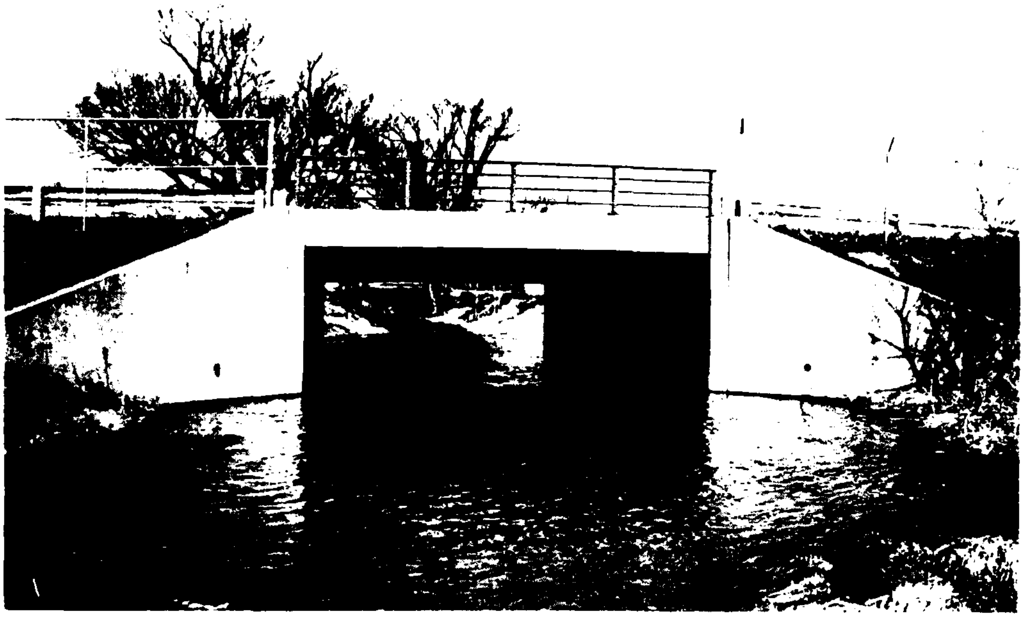


Figure 7 - View of downstream side of Beahan Road bridge. mile point 1.30. Photo taken April, 1975.

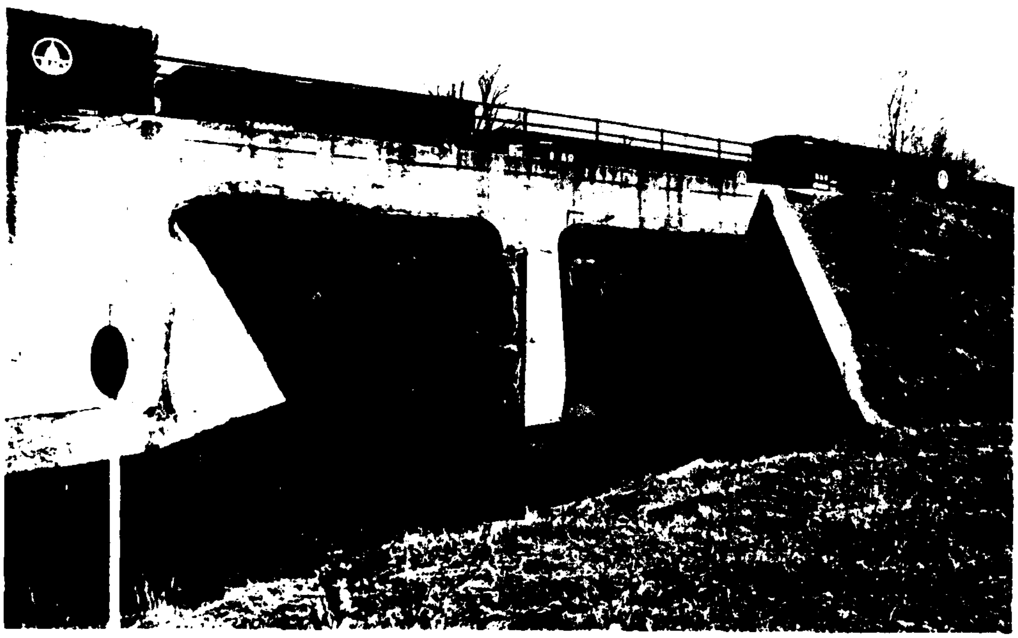


Figure 8 - View of downstream side of Baltimore and Ohio Railroad bridge. mile point 1.45. Photo taken April, 1975.

**Figure 9 - View of upstream side of typical bridge in Brooklea County Club, mile point 3.54. Photo taken April, 1975.**

**Figure 10 - View of upstream side of Interstate 490 Ramp with the eastbound and westbound bridges in the background, mile point 4.57. Photo taken April, 1975.**

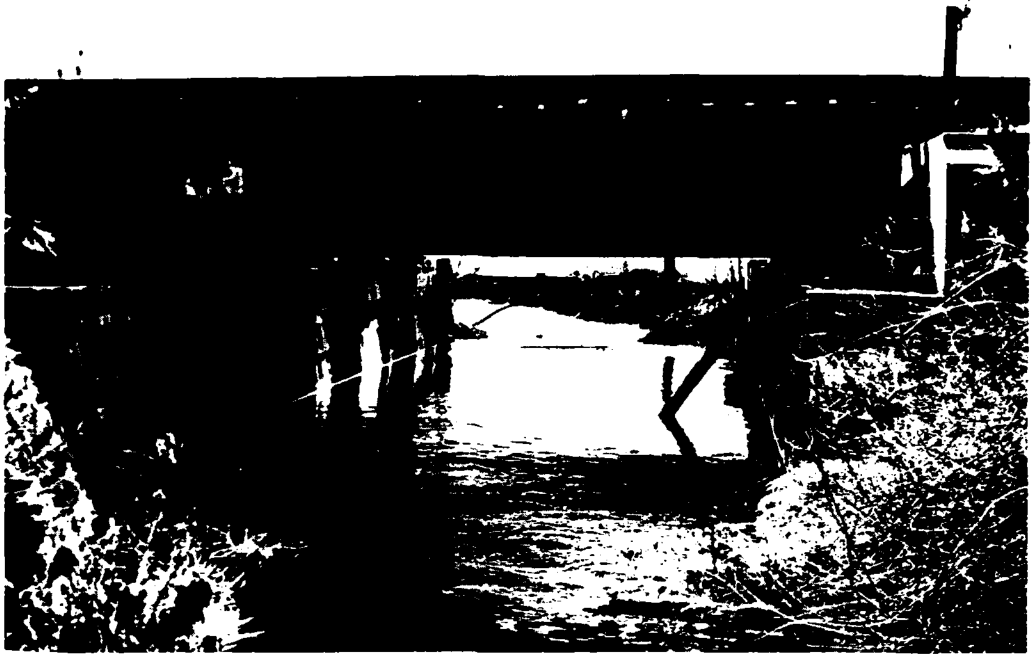


Figure 11 - View of upstream side of Penn Central Transportation Co. bridge, mile point 5.00. Photo taken April, 1975.

Figure 12 - View of downstream side of Coldwater Road bridge, mile point 5.17. Photo taken April, 1975.

Figure 13 - View of upstream side of Stoney Point Road bridge. mile point 8.32. Photo taken April, 1975.

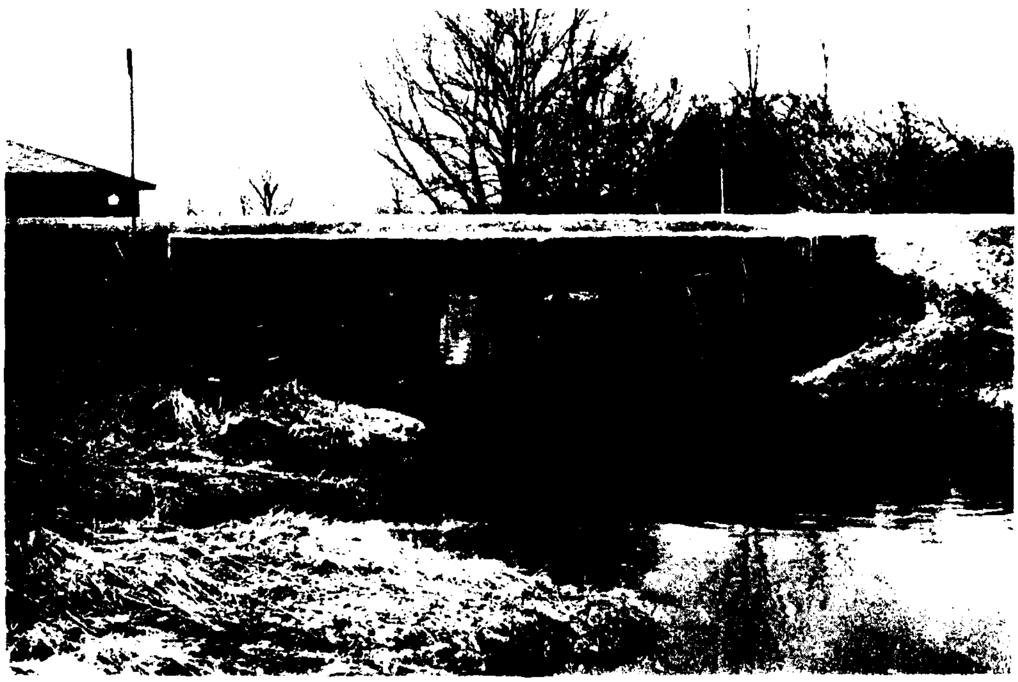


Figure 14 - View of downstream side of Union Street bridge. mile point 9.36. Photo taken April, 1975.

**Unified Flood Plain Management Programs**

Historically, the alleviation of flood damage has been accomplished almost exclusively by the construction of protective works such as reservoirs, channel improvements, and flood walls and levees. However, in spite of the billions of dollars that have already been spent for the construction of well designed and efficient flood control works, annual flood damages continue to accelerate because the number of persons and structures occupying flood prone lands is increasing faster than protective works can be provided.

Recognition of this trend in recent years has forced a reassessment of the flood control concept and resulted in the broadened concept of unified flood plain management programs. A unified flood plain management program is composed of five overlapping components. The first is conventional structural measures including various combinations of reservoir storage, levees, and channel improvement. The second is land use management which indicates the type of development which should be located within a specific flood prone area. The third is flood proofing which sets forth the design, use and maintenance of those developments located on the flood plain to minimize losses when floods occur. The fourth is the development of adequate emergency preparations including flood forecasting and temporary evacuation procedures. The fifth is the establishment of adequate flood insurance and catastrophy-aftermath relief measures to insure against total collapse of an area's economy and to provide the individuals and businesses affected a means with which to rebuild and re-establish. A unified flood plain management program is represented in Figure 15. Floods have first priority on the flood plains and man should recognize this "fact of life" before encroaching. The concept of unified flood plain management can be expressed as the realization that in many instances it is far better for man to adjust to nature rather than to have nature adjust to man.

The U.S. Army Corps of Engineers has prepared, and will distribute on request to State, County, and local governments for public dissemination, copies of pamphlets entitled "Guidelines for Reducing Flood Damages", "Introduction to Flood Proofing" and "Flood Proofing Regulations." The combination of data presented in this report and the pamphlets will provide general guidelines for flood damage reduction to existing and possible future development within the Little Black Creek flood plain.

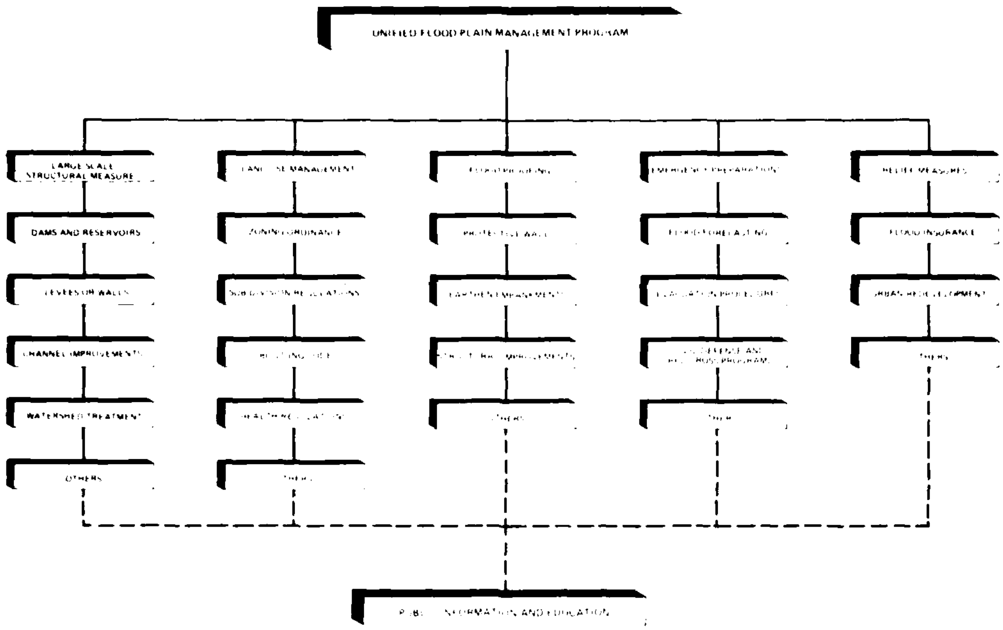



**Figure 15 - Unified Flood Plain Management Program**

**Flood Warning and Forecasting**--At present there is no flood warning or forecasting network within the Little Black Creek basin. However, the Surveillance Radar operated continuously by the National Weather Service at the Rochester-Monroe County Airport can provide for early detection of a storm and information concerning the predicted path and amount of rainfall can be broadcasted by radio and television to affected areas. Appropriate action can then be taken to minimize flood losses.

**Flood Plain Regulations**--Flood plain regulation applies to the full range of ordinances and other means designed to control land use and construction within flood prone areas. The term encompasses zoning ordinances, subdivision regulations, building and housing codes, encroachment line statutes, open area regulations, and other similar methods of management affecting the use and development of flood prone areas.

Flood plain land use management does not prohibit use of flood prone areas; to the contrary, flood plain land use management seeks the best use of flood plain lands. By using the flood plain maps, the water surface profiles and the cross-sections contained in this report as a guide, limited development, dependent upon the frequency of flooding, can be allowed in the flood plain. The elevations shown on the profiles should be used to determine flood heights because they are more accurate than the flooded outlines. Development in areas susceptible to frequent flooding should consist of construction which has a low damage potential such as parking areas. If high value construction such as buildings are considered for areas subject to frequent flooding, the land should be elevated to

minimize damages. If it is uneconomical to elevate the land in these areas, means of flood proofing the structures should be given careful consideration.

**Development Zones**--A flood plain can be conceptualized as consisting of two useful zones. The first being the designated "floodway" or that cross-sectional area required for carrying or discharging the anticipated flood waters. Velocities are greatest and most damaging in the floodway. Proper regulation limits flood damage potential within this area by specifying uses that are not subject to relatively serious upset, or damage by flooding. Regulations essentially maintain the flow conveying capability of the floodway to minimize inundation of additional adjacent areas. Uses which are acceptable for floodways include parks, parking areas, open spaces, etc. The vegetation cover of the floodways could be used as overland "Living Filters" for surface runoff during normal flow periods to reduce the pollutional impact of surface runoff prior to interception by the water course.

The second flood plain area is termed the "floodway fringe" or restrictive zone, in which inundation might occur but where depths and velocities are generally low. Such areas can be developed provided structures are placed high enough or flood proofed to be reasonably free from flood damage during the Intermediate Regional (100 year) Flood.

**Formulation of Flood Plain Regulations**--Formulation of flood plain regulations in a simplified sense involves selecting the type and degree of control to be exercised for each specific flood plain. In principal, the form of the regulations is not as important as a maintained adequacy of control. The degree of control normally varies with the flood hazard as measured by depth of inundation, velocity of flow, frequency of flooding, and the need for available land. Considerable planning and research is required for the proper formulation of flood plain regulations. Where formulation of flood plain regulation is envisioned to require a lengthy period of time during which development is likely to occur, temporary regulations should be adopted to be amended as necessary.

**National Flood Insurance Program**--The National Flood Insurance Act of 1968 provides previously unavailable flood insurance protection to property owners in flood-prone areas. The program is administered by the Federal Insurance Administration (FIA) of the U.S. Department of Housing and Urban Development (HUD) and is subsidized by Federal funds. It operates through an insurance industry pool under the auspices of the National Flood Insurers Association.

To qualify for the sale of federally subsidized flood insurance, a community must agree to adopt and enforce adequate land use and control measures consistent with

Federal criteria. These criteria usually require a flood-prone community to control development within the area anticipated to be inundated by the Intermediate Regional Flood.

## PAST FLOODS

### Flood Description

There is very little historical information on flooding in the Little Black Creek basin. Local libraries, newspapers, and historians were contacted in an attempt to find records of past flooding. The only flood for which there is easily obtainable information is the flood of May, 1974. Previous floods on Little Black Creek were seldom recorded because of the former agricultural nature of the basin. The extensive records of flooding on the Genesee River and Black Creek were used to determine other important flood dates.

**March 1865** -- This flood was the result of a heavy snowfall, followed by a sudden thaw and warm rains. The estimated peak flow on the adjoining Genesee River was 54,000 cubic feet per second and resulted in the largest known peak discharge at Rochester.

**March 1913** -- Streams flowing at near-bankfull capacity, as the result of a thaw, were augmented by five days of heavy rainfall. During the period of March 23-27, the total rainfall in the lower Genesee River Basin was 3.94 inches. Flooding occurred on the Genesee flats as well as other portions of the Little Black Creek basin.

**March 1960** -- This flood was caused primarily by melting of a heavy snow cover. Prior to the flood, the average water content of the snow cover was 4.1 inches in the Lower Genesee River basin. Flooding was extensive throughout the Little Black Creek and nearby basins, with the Genesee River flooding much of the lower basin.

**May 1974** -- Extensive flooding occurred in the Little Black Creek basin when a series of thunderstorms dropped approximately 3.85 inches of rain. The United States Geological Survey stated that a flow of 543 cubic feet per second was gaged on Little Black Creek at Beahan Road. Design flows of 1620 and 4710 cubic feet per second have been used to compute the Intermediate Regional and Standard Project Floods in this region.

## FUTURE FLOODS

Floods of the same or larger magnitude as those that have occurred in the past could and in all probability will occur in the future. Larger floods have been experienced in the past on streams with characteristics similar to those found in the study area. Similar combinations of rainfall and runoff which caused these floods could occur in the study area. Discussion of future floods in this report is limited to those that have been designated as the Intermediate Regional Flood and the Standard Project Flood. The Standard Project Flood represents a reasonable upper limit of expected flooding in the study area. The Intermediate Regional Flood may reasonably be expected to occur more frequently although it will not be as severe as the infrequent Standard Project Flood.

### Intermediate Regional Flood (IRF)

There are no active gaging stations on Little Black Creek, consequently, a statistical approach to determining flood discharges would not be possible. Nearby streams having the same basic characteristics as Little Black Creek were used in a regional frequency analysis. This analysis resulted in a mean annual flood versus drainage area relationship, which was developed into discharge frequency curves.

The IRF is by definition, a flood which is likely to be equaled or exceeded on the average of once every one hundred years. It is important to note that, while on a long term basis the occurrence averages out to once per hundred years, floods of this magnitude can occur in any given year or even in consecutive years and within any given time interval. The estimated peak discharges of the IRF for Little Black Creek at selected locations in the study area are shown in Table 2. Peak discharges have been reduced downstream of the Penn Central Transportation Co. Bridge at mile 4.98 because of the significant attenuation of flow due to storage upstream of this structure.

**TABLE 2- PEAK FLOWS FOR INTERMEDIATE REGIONAL AND STANDARD PROJECT FLOODS**

| Location | River Mile | Drainage Area at Downstream Location Sq. Mi. | Intermediate Regional Flood Discharge cfs (a) | Standard Project Flood Discharge cfs (a) |
|---|---|---|---|---|
| Mouth to Upstream of abandoned Penn Central Transportation Co. Bridge | 0.00-0.12 | 18.75 | 1930 | 6340 |
| Upstream of abandoned Penn Central Transportation Co. Bridge to Chili Avenue | 0.12-2.57 | 15.00 | 1620 | 4710 |
| Upstream of Chili Avenue to Penn Central Transportation Co. Bridge | 2.57-4.98 | 11.42 | 1290 | 3050 |
| Upstream of Penn Central Transportation Co. Bridge to Coldwater Road | 4.98-5.17 | 9.80 | 1700 | 6320 |
| Upstream of Coldwater Road to Buffalo Road | 5.17-7.21 | 6.57 | 1340 | 4650 |
| Upstream of Buffalo Road to Union Street | 7.21-9.36 | 4.86 | 1120 | 3690 |
| Upstream of Union Street | 9.36-11.95 | 1.90 | 440 | 1100 |

(a) Peak discharges downstream from the Penn Central Transportation Co. Bridge at mile 4.98 are reduced because of the significant storage effect upstream from this structure.

**Standard Project Flood (SPF)**

The concept of the SPF was developed by the Corps of Engineers in cooperation with the National Weather Service to provide a basis for comparison of floods and flood control project designs throughout the nation. The magnitude of the SPF is based upon an appraisal of the flows expected to develop with the coincidence of the most critical climatic conditions that are considered reasonably characteristic of the study area.

The SPF is not predicted by statistical analysis of historical stream flow data. The SPF is generated by combining all known critical flood producing variables. Standard Project Floods have been experienced on many streams and approached on others. Peak flows developed for the SPF for Little Black Creek through the study area are shown also in Table 2.

**Possible Larger Floods**

Floods larger than the SPF are possible, however, the probability of the necessary concident climatic conditions arising is sufficiently remote to preclude their consideration. Although it would be catastrophic if such floods occurred in a developed stream valley, their size and rarity are such that protection against them by protective works can seldom, if ever, be economically provided. Similarly, and again for economic reasons, such floods have little bearing as to the delineation of flood plains or to the uses which they are put. These larger floods are used principally to determine spillway capacities on major dams where failure of the structure during such an event would result in catastrophic flooding in the reaches downstream from the dam.

**Hazards and Damages of Large Floods**

The extent of damage caused by any flood depends on the topography of the area flooded, depth and duration of flooding, velocity of flow, rate of rise in water surface elevation and developments in the flood plain. Deep flood water flowing at high velocity and carrying floating debris would create conditions hazardous to persons and vehicles attempting to cross flooded areas. In general, flood water 3 or more feet deep and flowing at a velocity of 3 or more feet per second, could easily sweep an adult person off his feet, thus creating definite danger of injury or drowning. Rapidly rising and swiftly flowing flood water may trap persons in homes that are ultimately destroyed, or in vehicles that are ultimately submerged or floated. Water lines can be ruptured by deposits of debris and the force of flood waters, thus creating the possibility of contaminated domestic water supplies. Damaged sanitary sewer lines and sewage treatment plants could result in the pollution of flood waters creating health hazards. Isolation of areas by flood water could create hazards in terms of medical, fire or law enforcement emergencies.

For insurance and assessment purposes flood damages can be generalized into the following three classifications. Flood damages are not necessarily limited to direct physical change:

a. Direct damages, consisting of physical damages to property and goods, as can be measured by the cost of repair or replacement.

b. Indirect damages, consisting of the value of services lost by reasons of flood conditions, including losses of business and wages and costs of relief, both within and without the flood areas, during the period of flooding and subsequent rehabilitation.

c. Depreciation damages, consisting of loss in value or destruction of usefulness, such as ruination of once fertile lands for future agricultural purposes.

**Flooded Areas**--The Index Map, Plate 3, locates the flooded area maps, Plates 4 through 7. The areas that would be flooded by the Intermediate Regional and Standard Project Floods are shown in detail on Plates 4 through 7. The actual limits of these overflow areas may vary somewhat from those shown on the maps because the 5-foot contour interval and scale of the maps do not permit precise plotting of the flooded area boundaries. Plate 8 shows water surface profiles for the Intermediate Regional and Standard Project Floods. Depth of flow in the channel can be estimated from these illustrations. Typical cross sections of the flood plain at selected locations, together with the water surface elevation and lateral extent of the Intermediate Regional and Standard Project Floods are shown on Plates 9 and 10.

Table 3 is a list of elevation reference marks. The list is furnished as an aid to local interests in setting minimum elevations for future development or establishing other elevations necessary to flood plain planning.

Table 4 summarizes pertinent bridge data and lists water surface elevations for the IRF and SPF at bridges that cross Little Black Creek.

**Obstructions**--During floods, debris collecting on bridges could decrease their flow carrying capacity and cause greater water depths (backwater effect) upstream of these structures. Since the occurrence and amount of debris are indeterminate factors, only the physical characteristics of the structures were considered in preparing profiles of the Intermediate Regional and Standard Project Floods. No reduction in carrying capacity from clogging or jamming was considered. Similarly, the maps of flooded areas show the backwater effect of obstructive bridges, but do not reflect increased water surface elevations that could be caused by debris collecting against the structures. Of the 32 bridges listed in Table 4 crossing Little Black Creek, most of them are obstructive to the Intermediate Regional Flood and even more are obstructive to the Standard Project Flood. In some cases bridges may be high enough so as not to be inundated by flood flows; however, the approaches to these bridges may be at lower elevations and subject to flooding and rendered impassable.

**TABLE 3 ELEVATION REFERENCE MARKS FOR LITTLE BLACK CREEK**

**IN**
**MONROE COUNTY**

| Bench Mark (1) Designation & Approximate River Mile | Elevation (2) in Feet on U.S.C. & G.S. Datum | Description |
|---|---|---|
| Scottsville Road 0.02 | 526.91 | Top of Bronze Disc marked under bridge over Penn-Central Transportation Co. Bridge on *Scottsville Road.* |
| Abandoned Penn Central Transportation Co. Bridge 0.12 | 525.83 | Top of R.R. stake in center of R.R. tracks on South side of Bridge Number 2 |
| Paul Road 0.16 | 521.65 | Top of bolt N.E. Corner of Bridge Number 3. Bolt has cross cut in top and is one of anchorbolts on second rail supports. |
| Airport Culvert 0.43 (Downstream) | 524.89 | Chisel square on top of 4' concrete marker on North side of Paul Rd. by Airport fence and gate. |
| (Upstream) | 527.85 | Top of Monroe County Bronze Disc set in top of concrete culvert head wall on N.E. corner of *Paul* Rd. & Beahan Rd. by Airport Fence. |
| Beahan Road Bridge 1.30 | 530.73 | Chisel square on top of N.W. wingwall on Bridge crossing Little Black Creek on Beahan Rd. by Airport. |
| B & O. Railroad Bridge 1.45 | 543.03 | Chisel square on S.E. wingwall on N.E. corner of wingwall on Baltimore and Ohio R.R. Bridge over Little Black Creek. |
| Chili Avenue Bridge 2.57 | 551.18 | Chisel square on top of concrete headwall on N.E. corner of Bridge on Rt. 33A over Little Black Creek. |

**TABLE 3 (Continued)**
**ELEVATION REFERENCE MARKS FOR LITTLE BLACK CREEK**

**IN**
**MONROE COUNTY**

| Bench Mark (1) Designation & Approximate River Mile | Elevation (2) in Feet on U.S.C. & G.S. Datum | Description |
|---|---|---|
| Pixley Road Bridge 3.58 | 556.31 | Chisel square on top center of bridge guard wall on south east end of bridge over Little Black Creek on Pixley Road. |
| State Route 204 Bridge 3.85 | 555.99 | Top of upstream culvert wall on S.E. corner being a paint mark. |
| Floralton Road Bridge 4.08 | 554.41 | Chisel square on S.E. corner of N.E. wingwall on bridge over Little Black Creek on Floralton Road. |
| Route 490 Ramp Bridge 4.55 | 558.57 | Chisel square on top of concrete retaining wall on S.E. corner of South abutment on Bridge Number 10 over Little Black Creek. |
| Trabold Road Bridge 4.65 | 555.81 | Top of concrete retaining wall on bridge abutment over Little Black Creek on Trabold Road on N.W. corner. |
| Penn Central Transportation Co. Bridge 4.98 | 559.80 | Chisel square on top of N.E. wingwall on R.R. Bridge over Little Black Creek. |
| Coldwater Road Bridge 5.17 | 560.41 | Top of concrete guardwall on N.E. corner. Chisel square on bridge over Little Black Creek 20' south of Cherry Rd. |
| Whittier Road Bridge 6.77 | 571.84 | Chisel cross on top of "I" beam in ground for guard rail on N.E. end of Bridge. |
| Buffalo Road Bridge 7.21 | 578.32 | Chisel cross on top of R.R. track set vertical in center of N. or upstream side of Bridge to hold guard rail. |

**TABLE 3 (Continued)**
**ELEVATION REFERENCE MARKS FOR LITTLE BLACK CREEK**

**IN**
**MONROE COUNTY**

| Bench Mark (1) Designation & Approximate River Mile | Elevation (2) in Feet on U.S.C. & G.S. Datum | Description |
|---|---|---|
| Hutchins Road Bridge 8.11 | 584.30 | Chisel square on S W corner of upstream head wall on Hutchins Road |
| Stoney Point Road Bridge 8.31 | 587.11 | Chisel square on top of concrete guard wall on N E corner on Bridge going over Little Black Creek on Stoney Point Road |
| Stoney Point Road Bridge 8.86 | 589.90 | Chisel square on top of concrete guard wall on S W corner on bridge over Little Black Creek on Stoney Point Road |
| Union Street Bridge 9.36 | 591.83 | Chisel square on top of down stream headwall in N E corner of Bridge on Union St over Little Black Creek. |
| Whittier Road Bridge 10.35 | 596.25 | Top of P.K. in centerline of Whittier Road at Bridge Number 20. |
| Vroom Road Bridge 11.95 | 596.22 | Top of P.K. in centerline of Vroom Road at Bridge Number 21. |

(1) Bench Marks - A point of known elevation, usually a mark cut into some durable material such as stone or concrete, to serve as a reference point in running a line of levels for the determination of elevations. The list is furnished as an aid to local interests in setting minimum elevations for future development or establishing other elevations necessary to flood plain planning.

(2) Elevations established by Corps of Engineers during field surveys in July-September 1974. File No.'s L.B.C.-1 (TEMP) and L.B.C.-2 (TEMP)

**TABLE 4 - BRIDGES ACROSS LITTLE BLACK CREEK**

| Bridge | Mileage Above Mouth | Approximate Stream Bed Elevation (a) | Approximate Low Steel Elevation (a) | Approximate Bridge Floor Elevation (a) | Water Surface Elevation Intermediate Regional Flood (b) | Water Surface Elevation Standard Project Flood (b) |
|---|---|---|---|---|---|---|
| Scottsville Rd. | 0.02 | 505.8 | 524.1 | 526.0 | 517.6 | 529.7 |
| Abandoned Penn. Central Transportation Co. | 0.12 | 505.9 | 515.1 | 525.6 | 524.0 | 530.0 |
| Paul Road | 0.16 | 509.2 | 518.0 | 520.7 | 524.0 | 530.2 |
| Airport Culverts | 0.43 | 512.5 | 520.5 | 528.5 | 524.6 | 530.4 |
| Beahan Road | 1.30 | 519.2 | 528.3 | 530.3 | 526.8 | 531.8 |
| Driveway | 1.33 | 520.1 | 527.9 | 530.2 | 529.8 | 532.2 |
| B & O Railroad | 1.45 | 520.8 | 538.5 | 544.4 | 530.7 | 534.6 |
| Chili Ave. | 2.57 | 540.6 | 548.6 | 551.2 | 548.4 | 552.3 |
| Brooklea Br. | 3.35 | 542.6 | 547.2 | 548.6 | 551.3 | 554.5 |
| Brooklea Br. | 3.46 | 543.7 | 547.2 | 548.6 | 551.5 | 554.7 |
| Brooklea Br. | 3.54 | 543.6 | 547.0 | 548.4 | 551.8 | 555.0 |
| Pixley Road | 3.58 | 544.9 | 552.0 | 553.4 | 554.1 | 555.8 |
| Private Bridge | 3.77 | 545.2 | 551.4 | 552.9 | 554.3 | 556.3 |
| State Route 204 | 3.85 | 545.4 | 553.3 | 571.6 | 556.2 | 558.4 |
| Private Bridge | 3.93 | 545.6 | 551.5 | 552.3 | 556.4 | 558.7 |
| Private Bridge | 3.97 | 545.8 | 550.1 | 551.1 | 556.4 | 558.9 |
| Floralton Road | 4.08 | 546.8 | 553.0 | 554.7 | 556.6 | 559.1 |
| Interstate 490 East | 4.46 | 547.5 | 556.0 | 564.5 | 557.1 | 560.1 |
| Interstate 490 West | 4.51 | 547.8 | 556.0 | 565.1 | 557.6 | 561.9 |
| Interstate 490 Ramp | 4.55 | 547.6 | 556.1 | 562.3 | 558.4 | 562.4 |
| Trabold Road | 4.65 | 548.4 | 553.5 | 555.1 | 558.7 | 562.4 |
| Penn. Central Transportation Co. | 4.98 | 550.0 | 557.6 | 561.9 | 559.9 | 562.9 |
| Coldwater Road | 5.17 | 550.4 | 555.7 | 557.6 | 560.0 | 563.3 |
| Whittier Road | 6.77 | 562.3 | 568.1 | 569.8 | 571.1 | 572.9 |
| Buffalo Road | 7.21 | 568.1 | 573.7 | 576.4 | 577.4 | 579.3 |
| Farm Road | 7.57 | 572.9 | 577.6 | 578.3 | 580.0 | 582.8 |
| Hutchins Road | 8.11 | 577.7 | 582.5 | 584.2 | 585.0 | 586.4 |
| Stoney Point Road | 8.31 | 578.3 | 582.7 | 584.5 | 585.5 | 587.4 |
| Stoney Point Road | 8.86 | 578.3 | 585.4 | 587.4 | 587.5 | 589.2 |
| Union Street | 9.36 | 586.4 | 590.4 | 592.7 | 593.0 | 593.7 |
| Whittier Road | 10.35 | 594.5 | 599.5 | 601.4 | 601.5 | 602.2 |
| Vroom Road | 11.95 | 608.2 | 612.2 | 614.1 | 614.4 | 614.9 |

(a) All elevations given are on United States Coast and Geodetic Survey Datum
(b) Water surface elevations refer to upstream side of respective bridge.

**Velocities of Flow**--Water velocities during floods depend largely on the size and shape of the cross sections, the conditions of the stream, and the bed slope, all of which vary on different streams and at different locations on the same stream. Table 5 shows average channel and overbank velocities for the Intermediate Regional Flood and the Standard Project Flood. During an Intermediate Regional Flood, velocities of main channel flow in Little Black Creek in the study area would range from 1.9 to 8.6 feet per second. Water flowing at this rate is capable of causing severe erosion to stream banks and embankments at bridge abutments and transporting large objects. Overbank flow in the study area would average 0.5 to 1.4 feet per second. Water flowing at 2 feet per second or less would deposit debris and silt.

**TABLE 5**

**INTERMEDIATE REGIONAL FLOOD AND STANDARD PROJECT FLOOD DISCHARGES AND AVERAGE VELOCITIES**

| Stream Mile | Discharge cfs | Average Velocity feet per second Channel | Overbank |
|---|---|---|---|
| | **Intermediate Regional Flood** | | |
| 0.00-0.12 | 1930(a) | 8.6 | 0.5 |
| 0.12-2.57 | 1620(a) | 4.9 | 1.4 |
| 2.57-4.30 | 1290(a) | 2.2 | 0.8 |
| 4.30-4.98 | 1140(a) | 3.7 | 0.5 |
| 4.98-5.17 | 1700 | 1.9 | 0.8 |
| 5.17-7.21 | 1340 | 3.2 | 1.2 |
| 7.21-8.50 | 1120 | 3.1 | 1.1 |
| 8.50-9.36 | 640 | 2.0 | 0.8 |
| 9.36-11.95 | 440 | 2.4 | 0.9 |
| | **Standard Project Flood** | | |
| 0.00-0.12 | 6340(a) | 6.3 | 1.0 |
| 0.12-2.57 | 4710(a) | 4.5 | 2.0 |
| 2.57-4.30 | 3050(a) | 2.8 | 1.2 |
| 4.30-4.98 | 2310(a) | 0.8 | 0.5 |
| 4.98-5.17 | 6320 | 3.7 | 1.7 |
| 5.17-7.21 | 4650 | 4.8 | 2.1 |
| 7.21-8.50 | 3690 | 4.5 | 1.7 |
| 8.50-9.36 | 1800 | 2.9 | 1.1 |
| 9.36-11.95 | 1100 | 3.1 | 1.3 |

(a) Decreased discharge reflects the attenuation of flow due to the influence of storage upstream from the Penn Central Transportation Co. Bridge at mile 4.98.

**Rates of Rise and Duration of Flooding**--Rates of rise are dependent upon the shape of the basin antecedent conditions, intensity of the storm, development within the basin, and debris in the channel at the time of the storm.

The duration of a flood is dependent upon the duration of the storm, the storage capacity of the overbank, prolonged runoff from snowmelt, and high stages caused by ice jams, etc.

It is impossible to predict accurate rates of rise and duration because many variations in rainfall distribution could produce the Intermediate Regional Flood peak discharge with a variety of rise rates.

A study of the nature of flooding within the study area indicates that Little Black Creek through the study area is prone to rapid and dangerous rates of rise. The rate of rise for flood conditions was estimated between 1.0 and 2.0 feet per hour, and flood conditions were estimated to last from one half to one day.

**Photographs, Future Flood Heights**--The expected levels of the Intermediate Regional and Standard Project Floods for various locations in the study area are indicated on Figures 16 through 19.


Figure 16 - Future flood heights at the Gates. Chili. Ogden Sewage Treatment Plant, near mile point 0.35. Photo taken April, 1975.


Figure 17 - Future flood heights at the Chili Avenue bridge. mile point 2.57. Photo taken April, 1975.

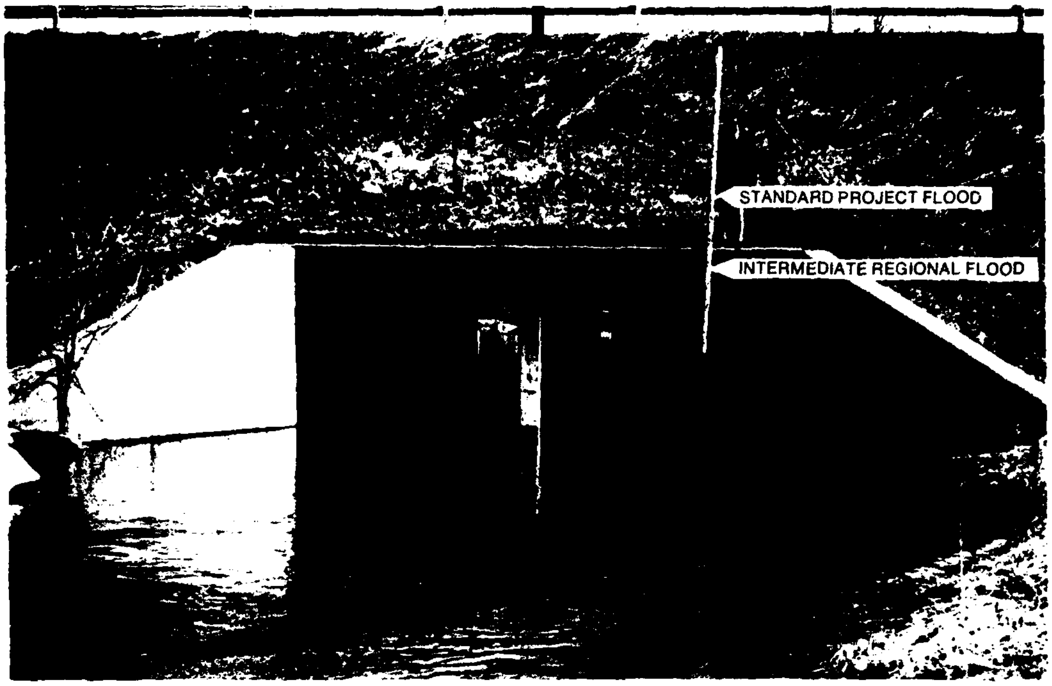



**Figure 18 - Future flood heights at the State Route 204 bridge, mile point 3.89. Photo taken April, 1975.**

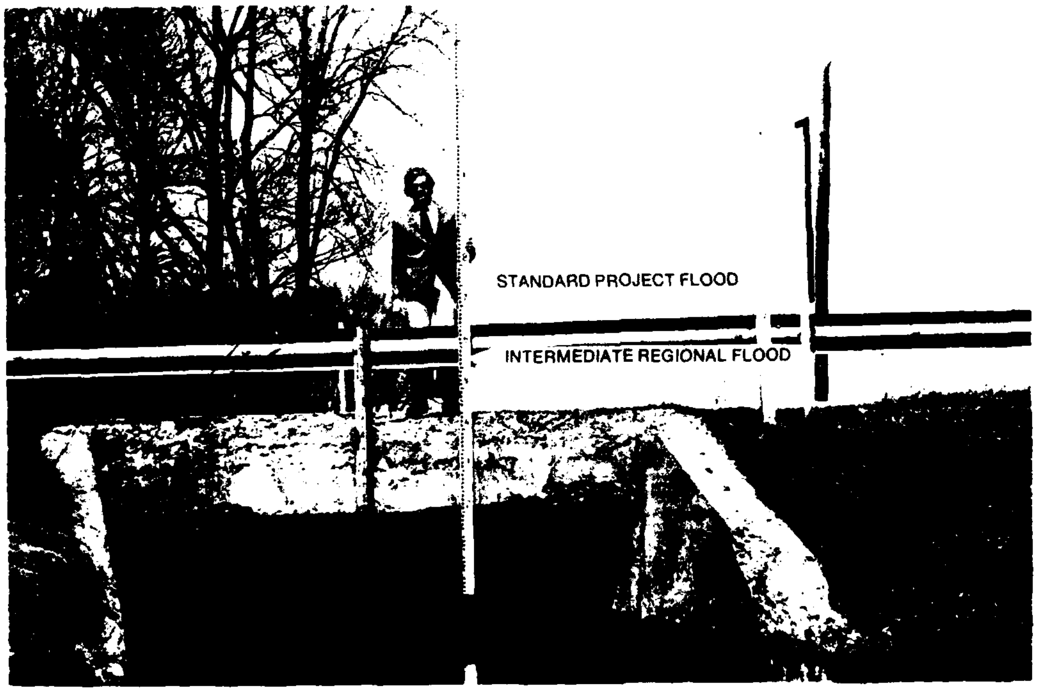



**Figure 19 - Future flood heights at the Buffalo Road bridge, mile point 7.21. Photo taken April, 1975.**

## GLOSSARY

**Backwater.** The resulting high water surface in a given stream due to a downstream obstruction or high stages in an intersecting stream.

**Flood.** An overflow of lands not normally covered by water and that are used or usable by man. Floods have two essential characteristics: The inundation of land is temporary; and the lands is adjacent to and inundated by overflow from a river, stream, ocean, lake, or other body of standing water.

Normally a "flood" is considered as any temporary rise in streamflow or stage, but not the ponding of surface water, that results in significant adverse effects in the vicinity. Adverse effects may include damages from overflow of land areas, temporary backwater effects in sewers and local drainage channels, creation of unsanitary conditions or other unfavorable situations by deposition of materials in stream channels during flood recessions, rise of ground water coincident with increased streamflow, and other problems.

**Flood Crest.** The maximum stage or elevation reached by waters of a flood at a given location.

**Flood Plain.** The areas adjoining a river, stream, watercourse, ocean, lake or other body of standing water that have been or may be covered by floodwater.

**Flood Profile.** A graph showing the relationship of water surface elevation to location, the latter generally expressed as distance above mouth for a stream of water flowing in an open channel. It is generally drawn to show surface elevation for the crest of a specific flood but may be prepared for conditions at a given time or stage.

**Flood Stage.** The stage or elevation at which overflow of the natural banks of a stream or body of water begins in the reach or area in which the elevation is measured.

**Floodway.** The channel of a watercourse and that portion of the adjoining flood plain required to provide for the passage of the Intermediate Regional Flood.

**Hurricane.** An intense cyclonic windstorm of tropical origin in which winds tend to spiral inward in a counterclockwise direction toward a core of low pressure, with maximum surface wind velocities that equal or exceed 75 miles per hour (65 knots) for several minutes or longer at some points. Tropical storm is the term applied if maximum winds are less than 75 miles per hour.

**Hydrograph.** A graph showing flow values against time at a given point usually measured in cubic feet per second. The area under the curve indicates total volume of flow.

**Hydrology.** The science that deals with the occurrence and behavior of water in the atmosphere, on the ground, and underground.

**Intermediate Regional Flood.** A flood having an average frequency of occurrence in the order of once in 100 years although the flood may occur in any year. It is based on statistical analysis of streamflow records available for the watershed and analysis of rainfall and runoff characteristics in the general region of the watershed.

**Left Bank.** The bank on the left side of a river, stream, or watercourse, looking downstream.

**Right Bank.** The bank on the right side of a river, stream, or watercourse, looking downstream.

**Standard Project Flood.** The flood that may be expected from the most severe combination of meteorological and hydrological conditions that are considered reasonably characteristic of the geographical area in which the drainage basin is located, excluding extremely rare combinations. Peak discharges for these floods are generally about 40-60 percent of the Probable Maximum Floods for the same basins. As used by the Corps of Engineers, Standard Project Floods are intended as practicable expressions of the degree of protection that should be sought in the design of flood control works, the failure of which might be disastrous.

**Underclearance Elevation.** The elevation at the top of the opening of a culvert, or other structure through which water may flow along a watercourse.

## AUTHORITY AND INTERPRETATION OF DATA

This report has been prepared by Lozier Engineers, Inc. under the direction of the Buffalo District of the U.S. Army Corps of Engineers in accordance with the authority granted by Section 206 of the Flood Control Act of 1960 (PL86-465) as amended.

This report presents the local flood situation caused by Little Black Creek in Monroe County, New York. The Buffalo District will provide, upon request, interpretation and limited technical assistance in the application of these data, particularly as to their use in developing effective flood plain regulations. After local authorities have selected the flood magnitude or frequency to be used as the basis for regulation, further information on the effects of various widths of floodway on the profile can be provided to assist in final selection of floodway limits.

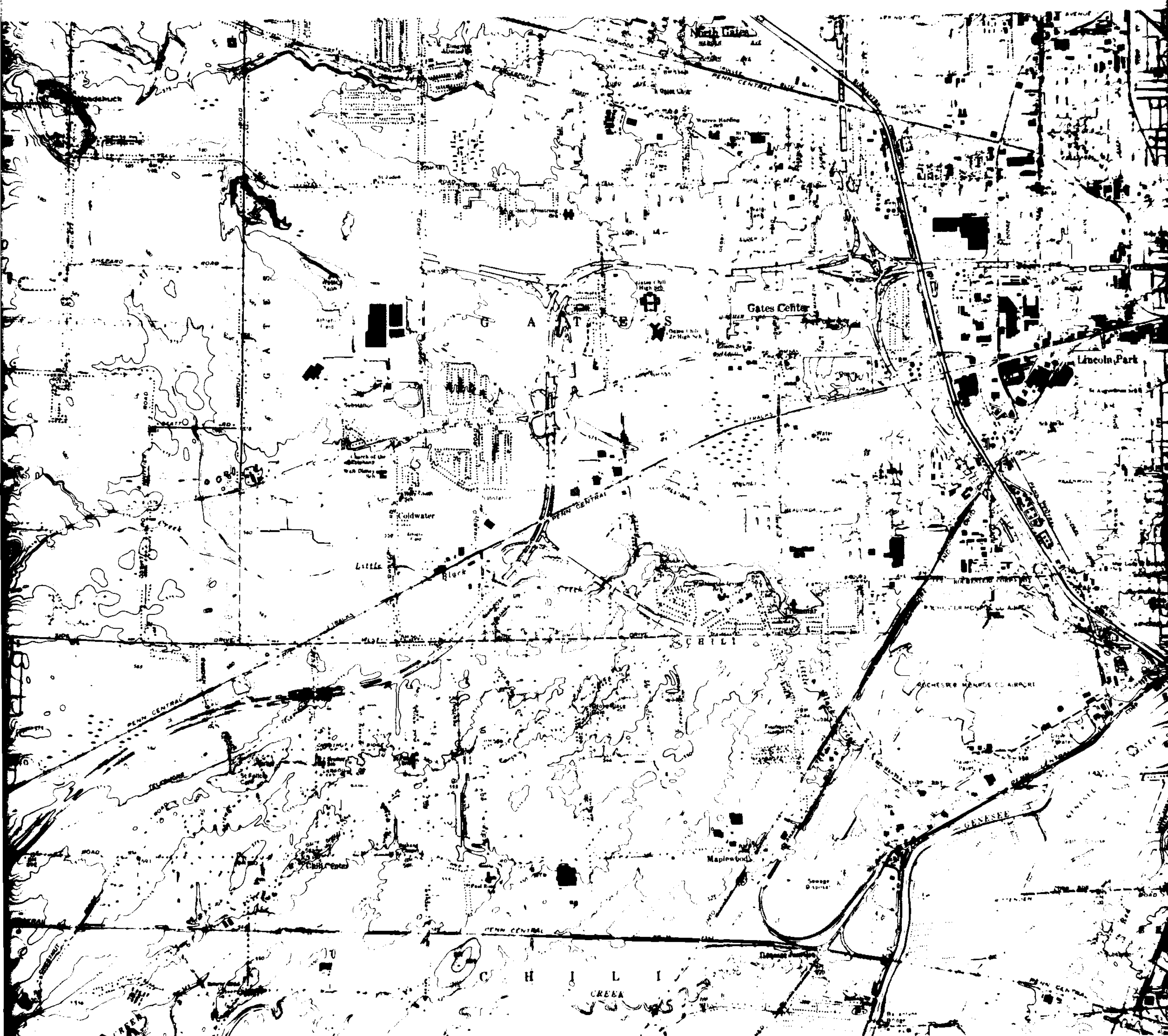

## ACKNOWLEDGEMENTS

The personnel of the News Library of the Gannett Rochester Newspapers, and the personnel of the Local History section of the Rochester Public Library are thanked for their assistance. Mr. George Lusk, Assistant County Clerk; Mrs. Bernice Wilcox, Town of Chili Historian; Mr. Domenick White; and Mrs. Fred Baker, Town of Gates Historian are thanked for their assistance. Mr. John M. Robertella of the Gates-Chili News is thanked for use of the cover photograph.

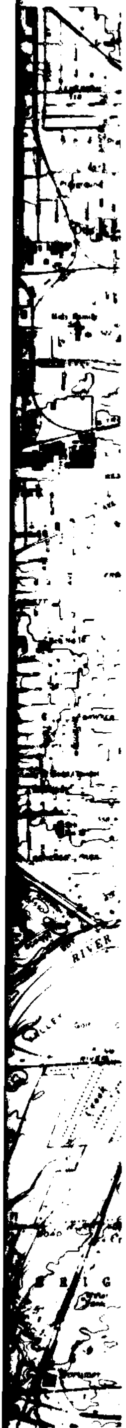

## REFERENCES

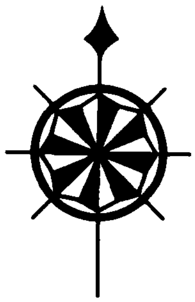

1. "Drainage Study - Stage I", Monroe County Planning Council, December 1962.
2. "Planning Inventory, Town of Chili", Monroe County Planning Council, June 1971.
3. "Planning Inventory, Town of Ogden", Monroe County Planning Council, September 1972.
4. "Planning Inventory, Town of Gates", Monroe County Planning Council, November 1972.


Ogden Center
O G D E N
Town Pond
Substation
R I G A
North Chili
West Shore Ponds
PENN CENTRAL



North Gates
PENN CENTRAL
Gates Center
Lincoln Park
G A T E S
Coldwater
Little Black Creek
C H I L I
Maplewood
GENESEE
CREEK




SCALE IN FEET

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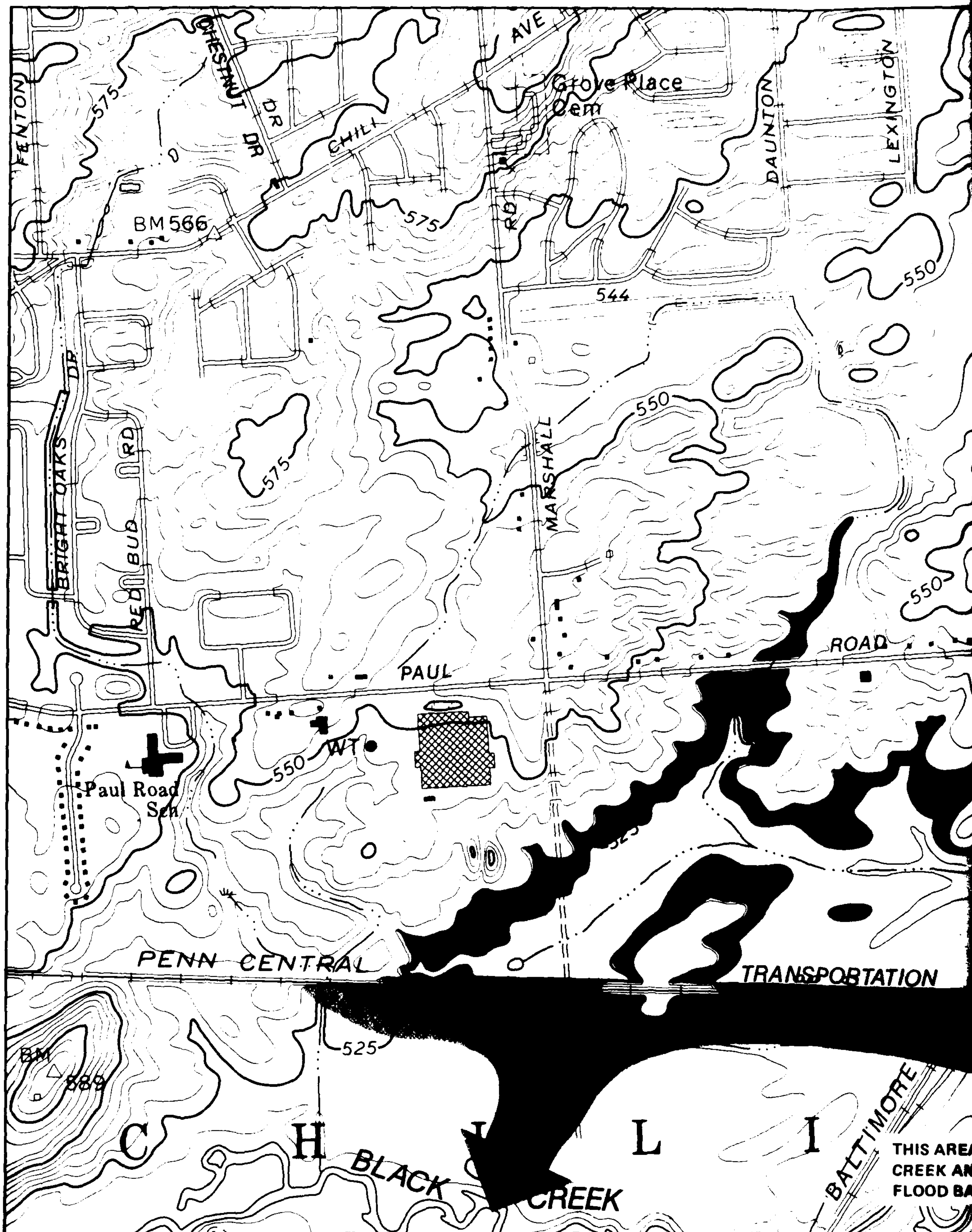
DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
BUFFALO, NEW YORK

**FLOOD PLAIN INFORMATION**

**LITTLE BLACK CREEK**
**MONROE COUNTY, N. Y.**

**INDEX MAP – FLOODED AREAS**

AUGUST 1975



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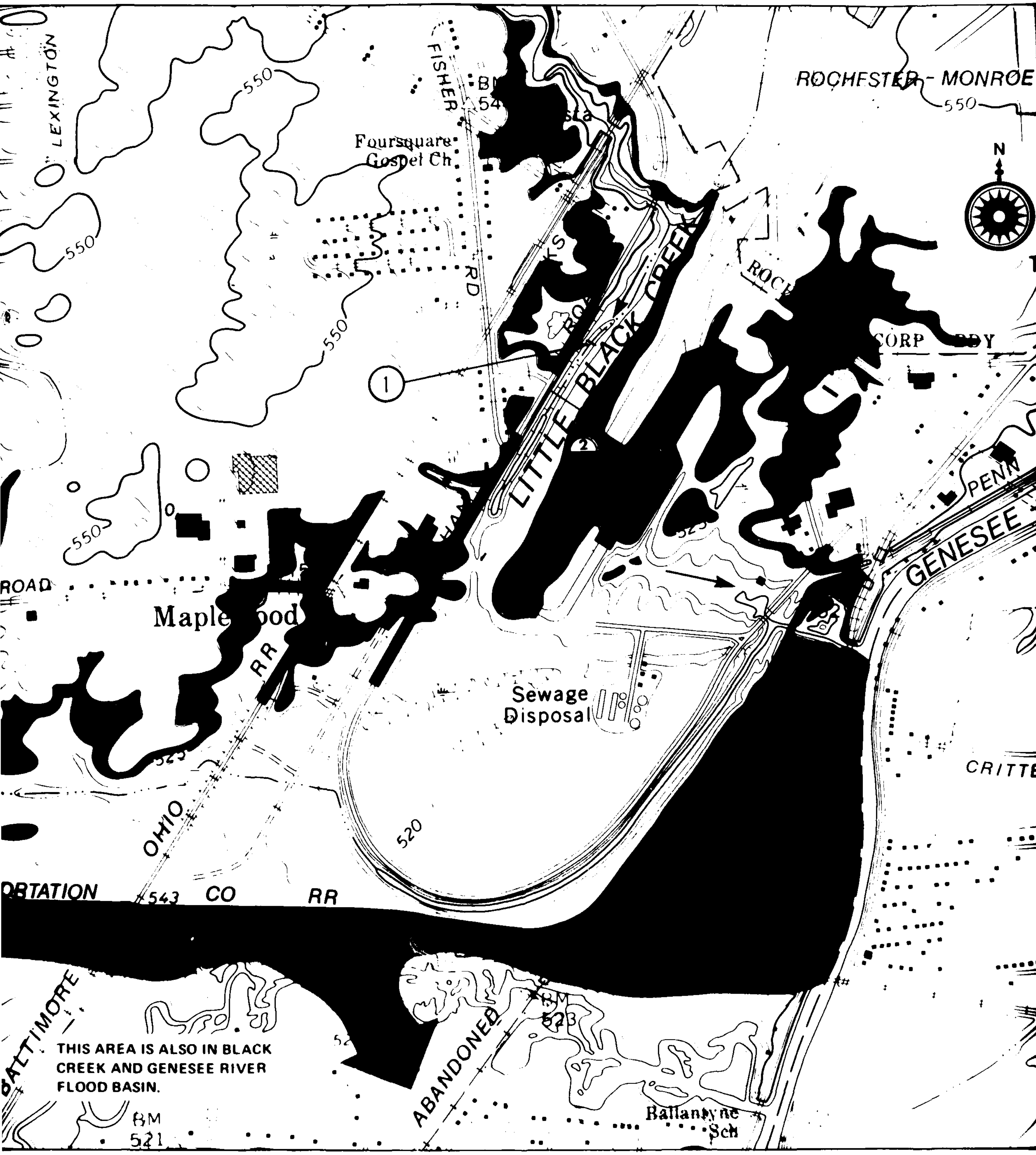
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THIS AREA IS ALSO IN BLACK CREEK AND GENESEE RIVER FLOOD BASIN.
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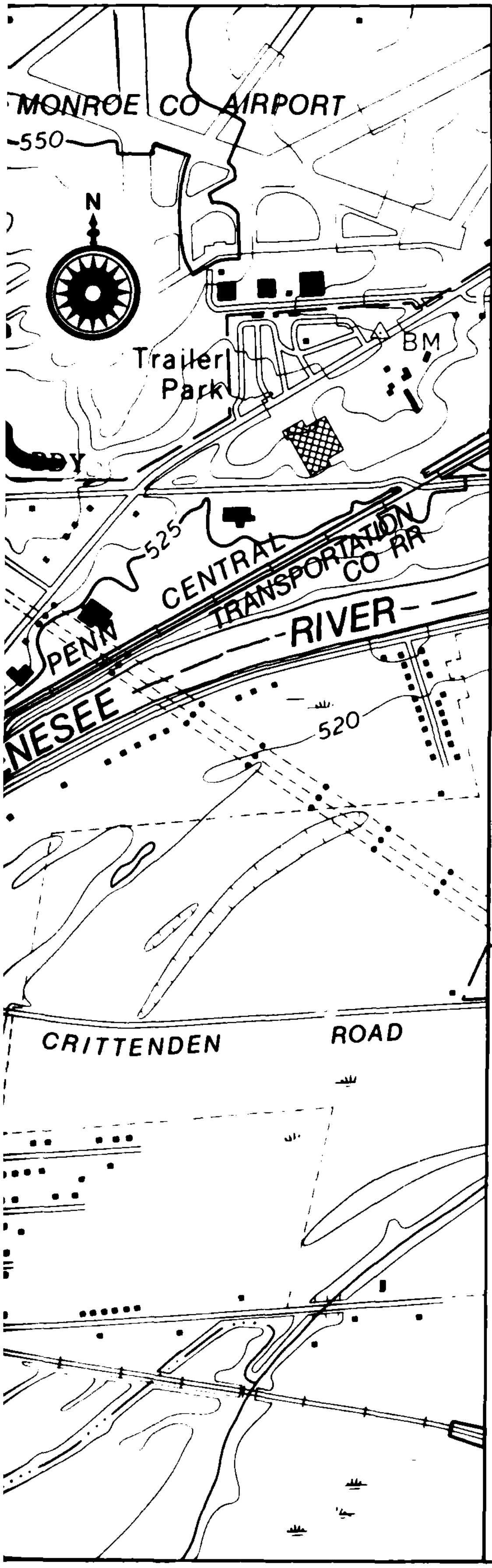



LEGEND

STANDARD PROJECT FLOOD

INTERMEDIATE REGIONAL FLOOD

MILE POINT UPSTREAM FROM MOUTH 1

VALLEY CROSS SECTION 2

FLOW ARROW

NOTES:

1. Map is a composite photo enlargement of New York U.S.G.S. 7.5 min. quadrangle sheet; West Henrietta. Minor additions and adjustments made by Corps of Engineers.
2. Limits of overflow indicated may vary some from actual location on ground as explained in this report.
3. Areas outside the floodway may be subject to flooding from local runoff.
4. Minimum contour interval is 5 feet.

SCALE IN FEET

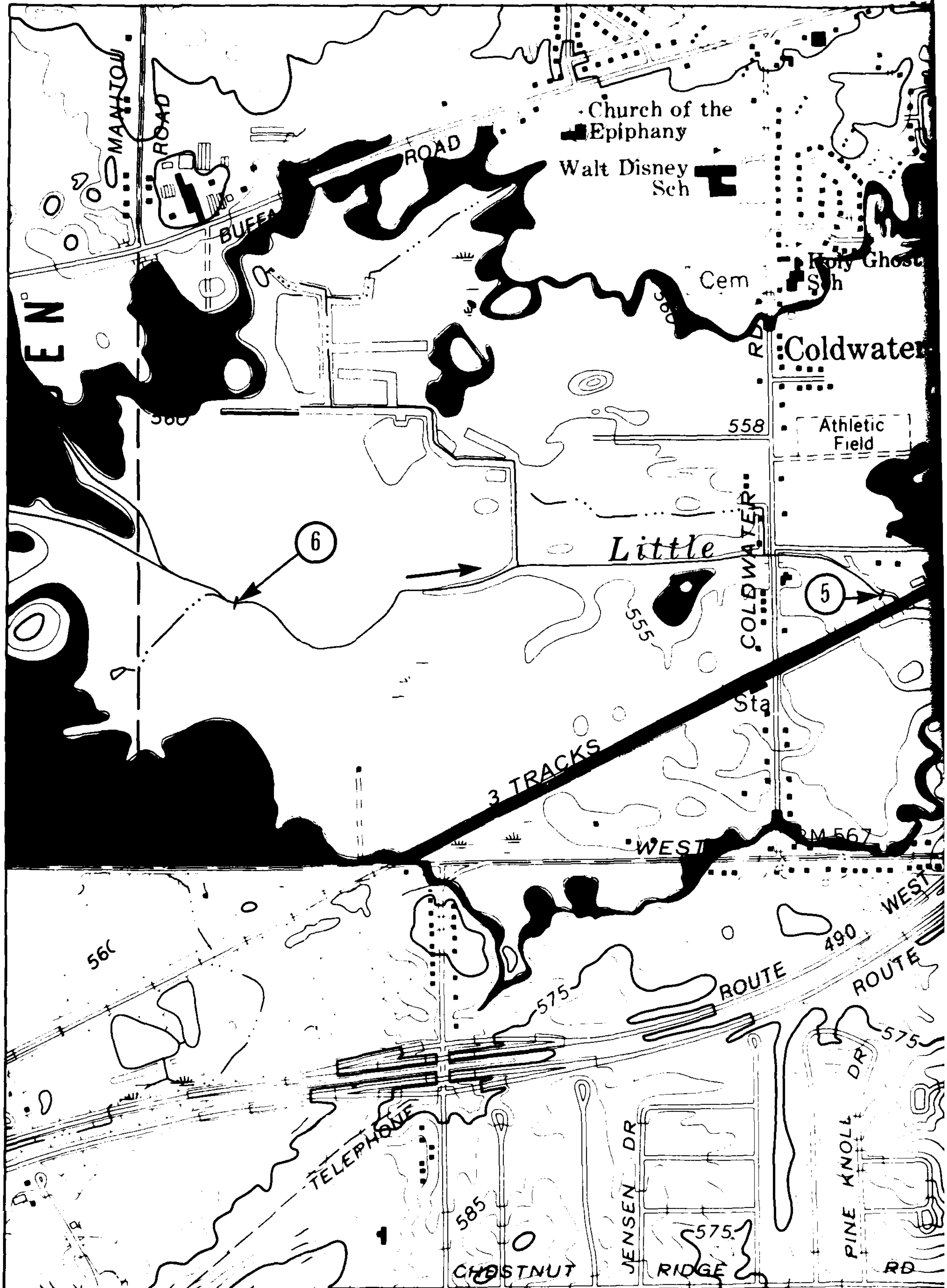
0 1000 2000

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
BUFFALO, NEW YORK

**FLOOD PLAIN INFORMATION**
**LITTLE BLACK CREEK**
**MONROE COUNTY, N.Y.**

**FLOODED AREAS**

AUGUST 1975



Church of the Epiphany
Walt Disney Sch
Holy Ghost Sch
Cem
Coldwater
Athletic Field
558
560
555
Little
COLDWATER
RD
MANITOU
ROAD
BUFFALO ROAD
6
5
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3 TRACKS
WEST
RM 567
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ROUTE 490 WEST
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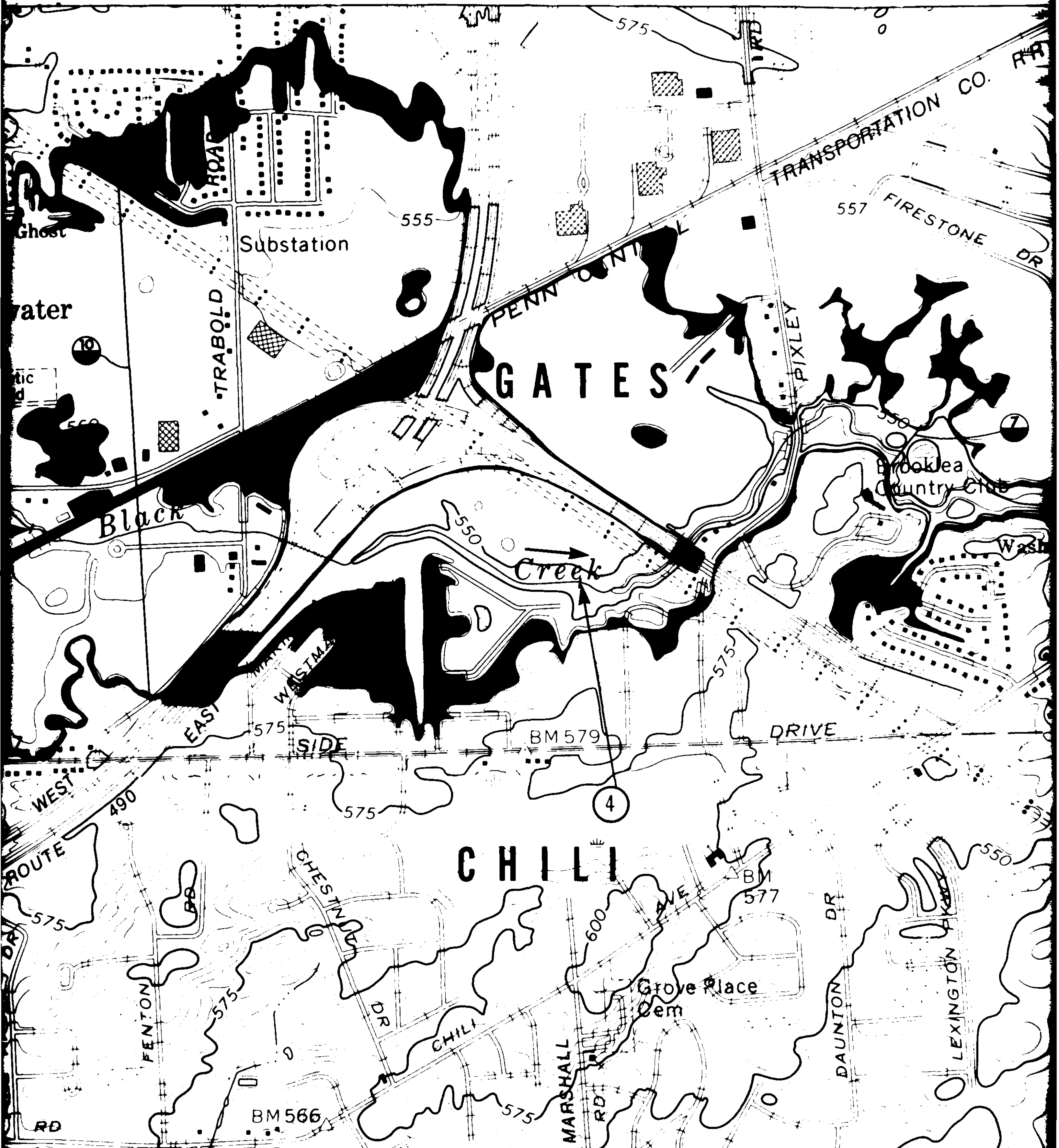
TELEPHONE
JENSEN DR
PINE KNOLL DR
CHESTNUT
RIDGE
RD



575
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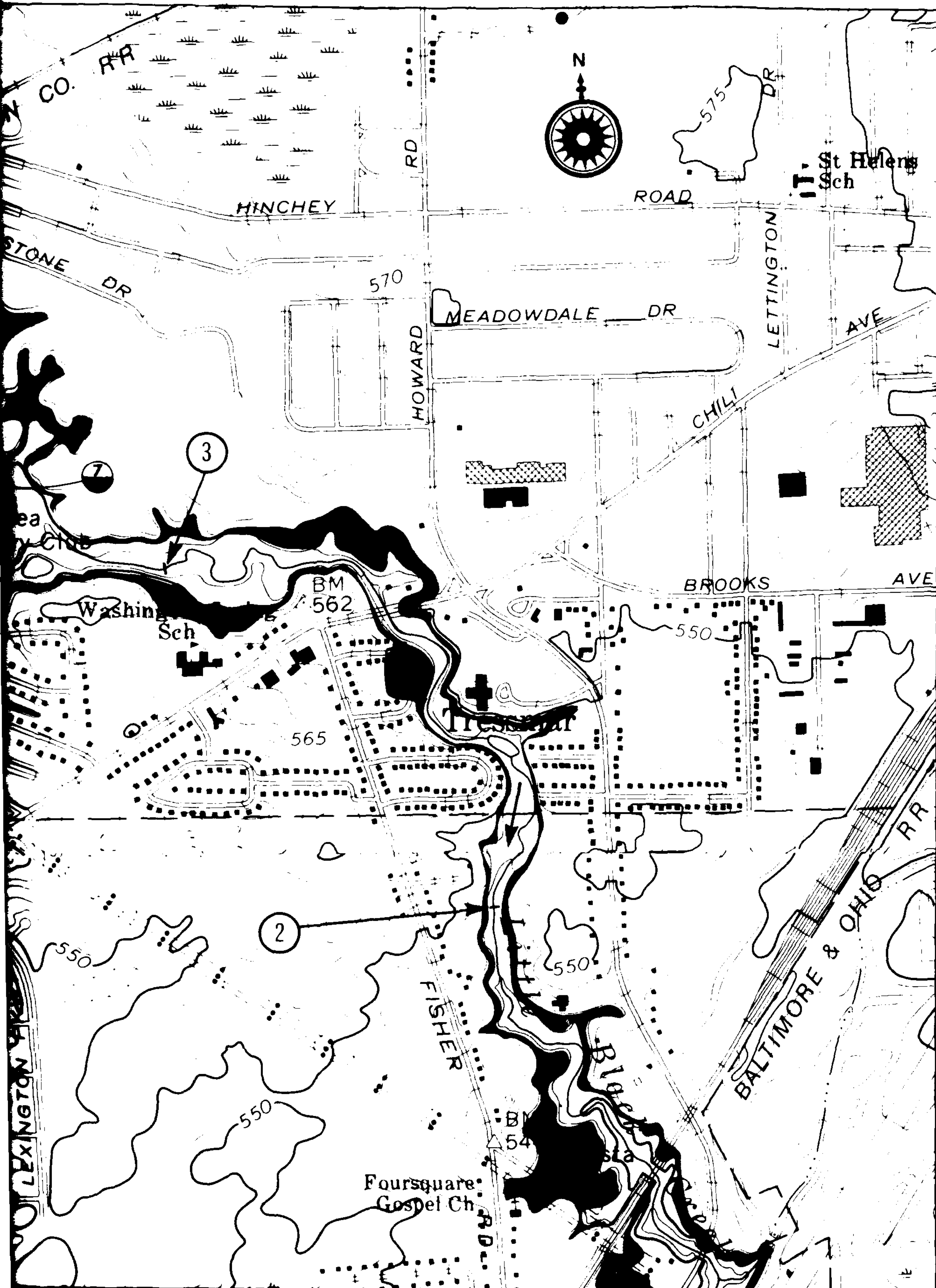
PENN CENTRAL TRANSPORTATION CO. RR
557
FIRESTONE DR
555
Ghost
Substation
ROAD
TRABOLD
water
10
GATES
PIXLEY
550
7
Brooklea Country Club
Black
Creek
550
Wash
575
EAST
WEST
SIDE
DRIVE
BM 579
575
4
490
ROUTE
575
CHILI
CHESTNUT
DR
RD
BM 577
AVE
600
DR
550
575
575
FENTON
Grove Place Cem
CHILI
MARSHALL
RD
DAUNTON
LEXINGTON
BM 566
RD
575




LEGEND

STANDARD PROJEC

INTERMEDIATE RE

MILE POINT UPSTRE

VALLEY CROSS SEC

FLOW ARROW

NOTES:

1. Map is a compo York U.S.G.S. Rochester West, Spencerport. Mi made by Corps o
2. Limits of overf from actual loca this report.
3. Areas outside t flooding from lo
4. Minimum contou

SCA

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BUFFALO DISTRIC
BUFFAL

**FLOOD PLAI**

**LITTLE**
**MONROE**

**FLOOD**

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PROJECT FLOOD

IATE REGIONAL FLOOD

T UPSTREAM FROM MOUTH 5

IOSS SECTION 7

IOW

a composite photo enlargement of New U.S.G.S. 7.5 min. quadrangle sheets; ster West, West Henrietta, Clifton and rport. Minor additions and adjustments by Corps of Engineers.

of overflow indicated may vary some ctual location on ground as explained in port.

outside the floodway may be subject to g from local runoff.

m contour interval is 5 feet.

SCALE IN FEET

1000 2000

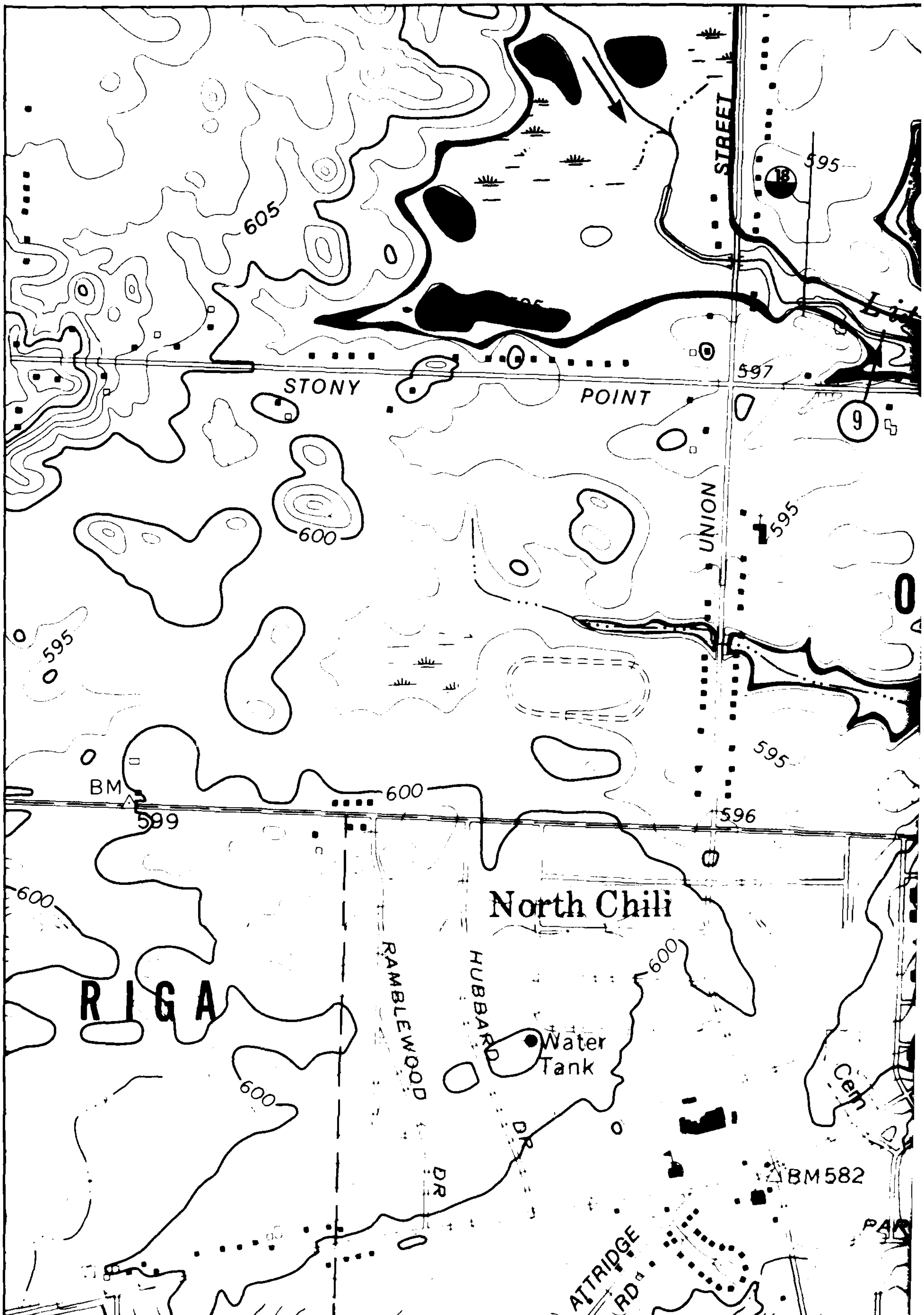
PARTMENT OF THE ARMY
DISTRICT, CORPS OF ENGINEERS
BUFFALO, NEW YORK

D PLAIN INFORMATION
ITTLE BLACK CREEK
NROE COUNTY, N.Y.

FLOODED AREAS

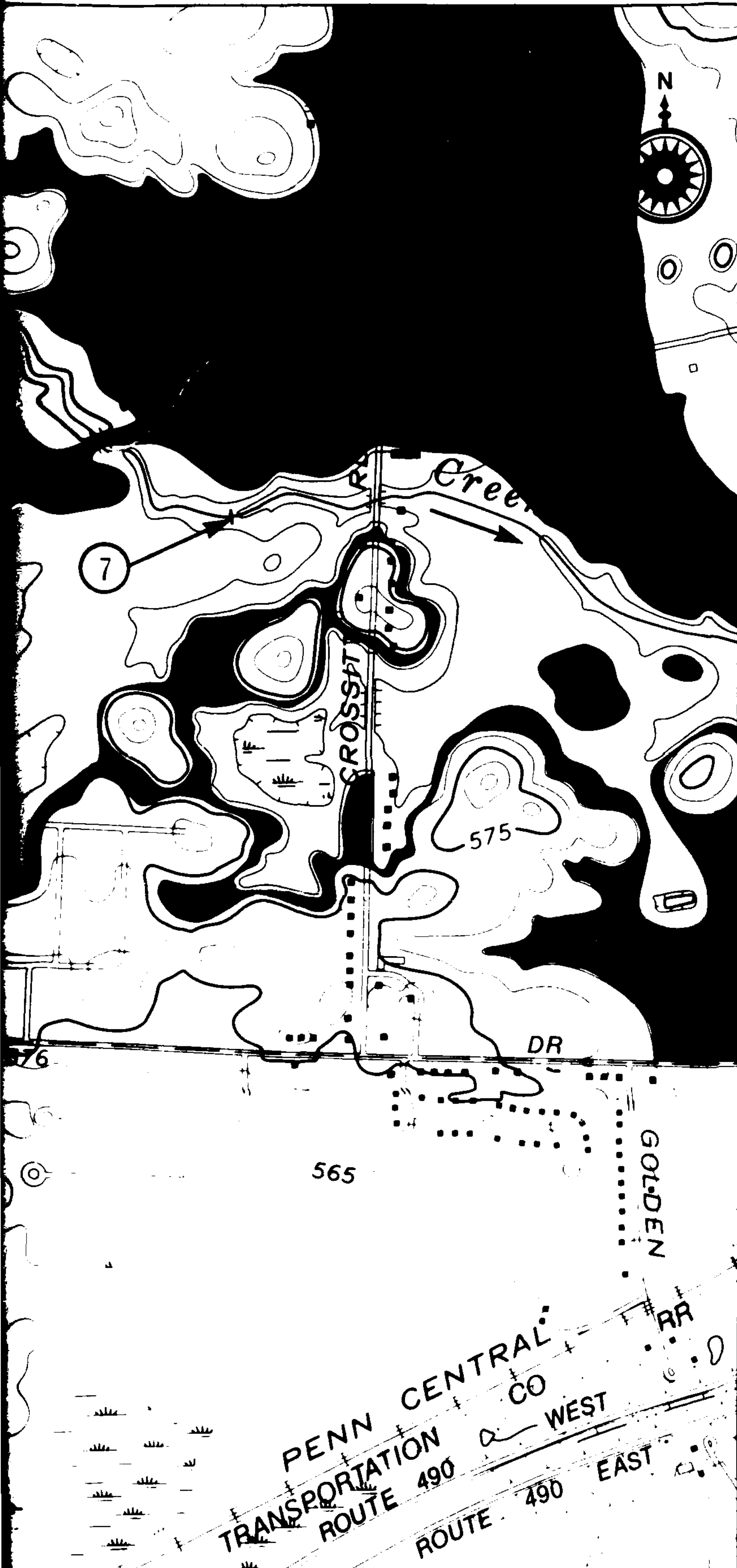
AUGUST 1975

PLATE 5



605
595
STREET
597
STONY
POINT
9
600
595
UNION
595
595
595
BM
599
600
596
North Chili
600
600
RIGA
RAMBLEWOOD
HUBBARD
Water
Tank
600
DR
DR
BM582
ATTRIDGE
RD
Cem

ROAD
600
595
600
Little
8
9
BM
590
ROAD
7
600
585
OGDEN
585
WEST
SIDE
587
576
575
Roberts Wesleyan
College
BUFFALO
DR
CHILI
Cem
EVERGREEN
582
575
PARKWAY
DR
568
575




## LEGEND

STANDARD PROJECT FLOOD

INTERMEDIATE REGIONAL FLOOD

MILE POINT UPSTREAM FROM MOUTH (9)

VALLEY CROSS SECTION (18)

FLOW ARROW

## NOTES:

1. Map is a composite photo enlargement of New York U.S.G.S. 7.5 min. quadrangle sheets Clifton and Spencerport. Minor additions and adjustments made by Corps of Engineers.
2. Limits of overflow indicated may vary some from actual location on ground as explained in this report.
3. Areas outside the floodway may be subject to flooding from local runoff.
4. Minimum contour interval is 5 feet.

SCALE IN FEET

0 1000 2000

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
BUFFALO, NEW YORK

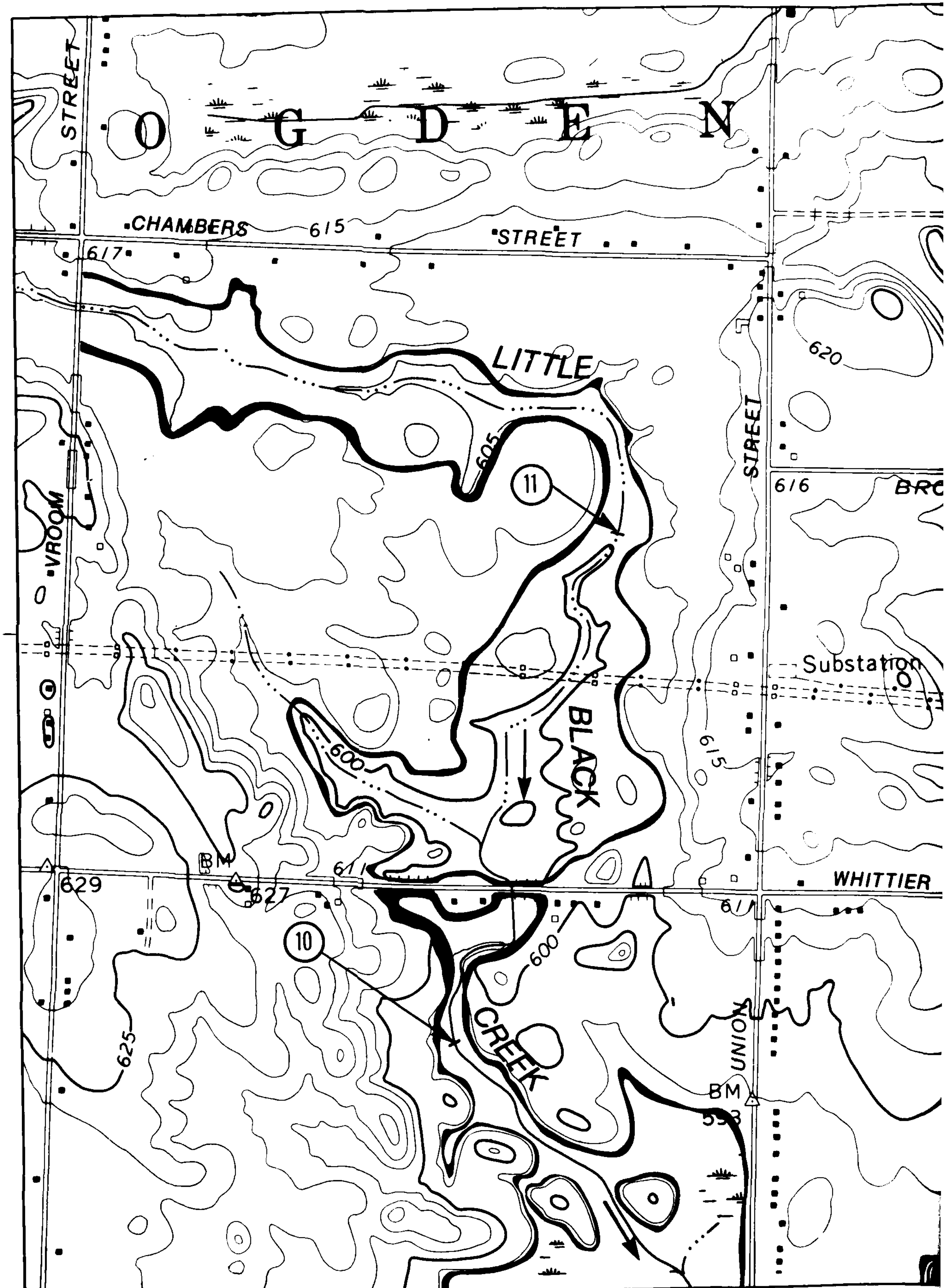
**FLOOD PLAIN INFORMATION**

**LITTLE BLACK CREEK**
**MONROE COUNTY, N.Y.**

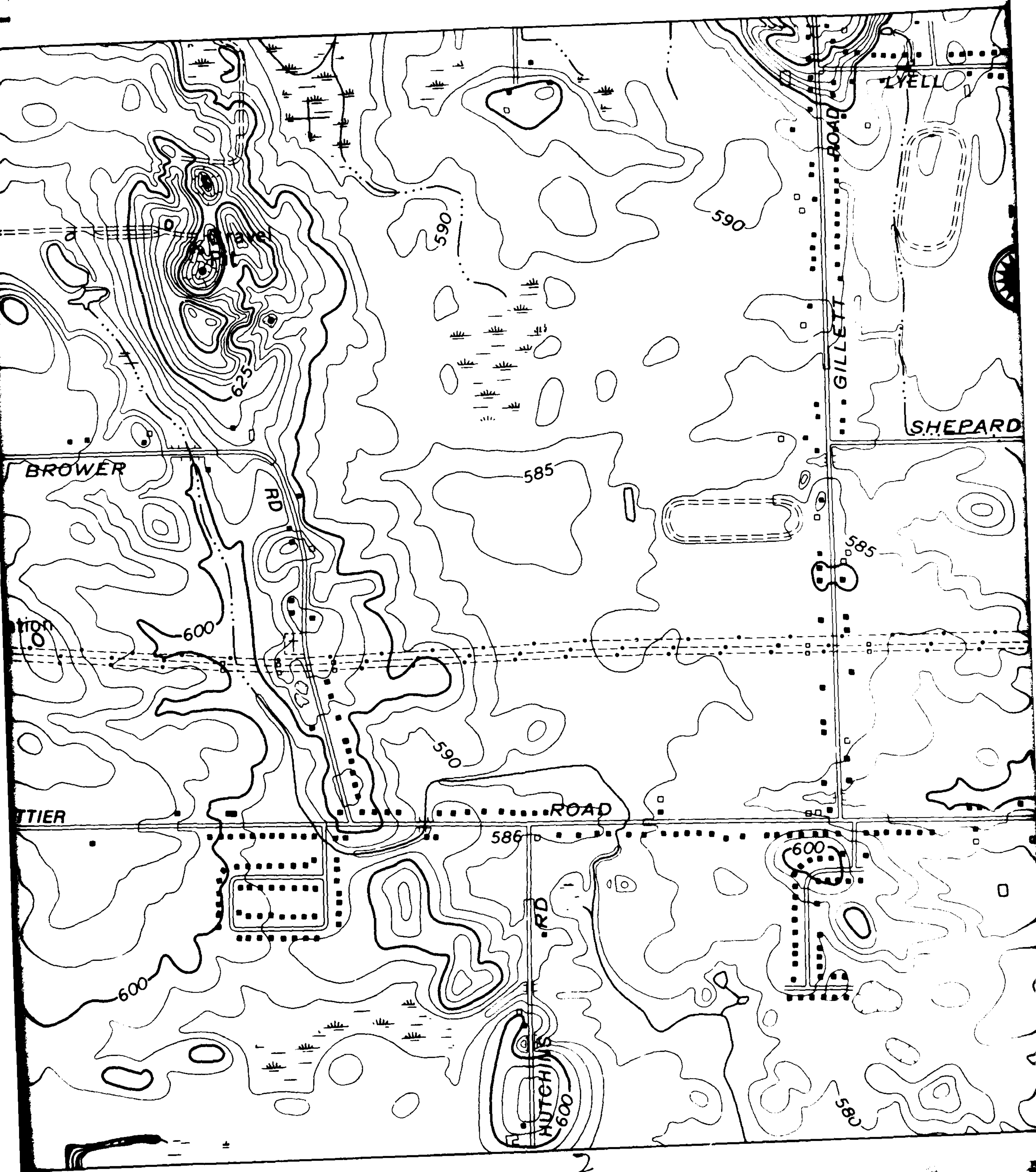
**FLOODED AREAS**

AUGUST 1975

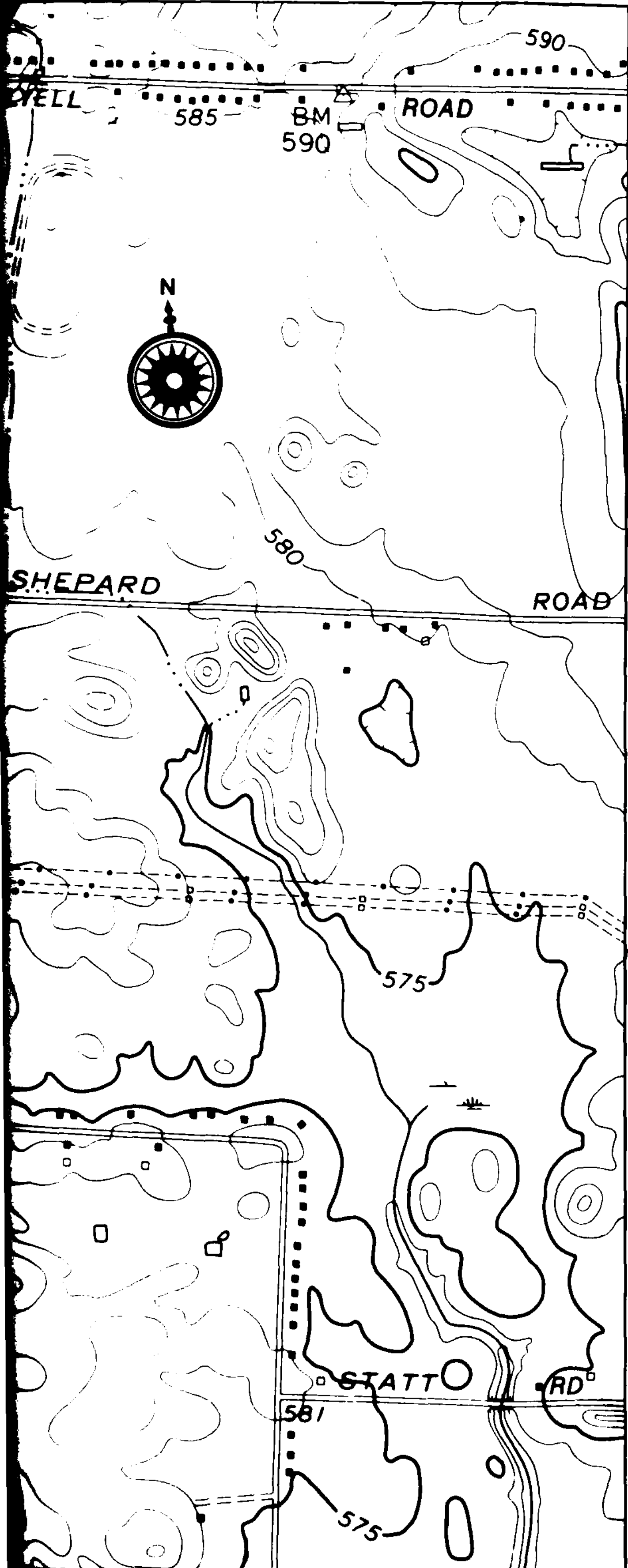
PLATE



O G D E N
STREET
CHAMBERS
615
STREET
617
LITTLE
620
605
11
STREET
616
VROOM
Substation
BLACK
600
615
BM
629
627
611
WHITTIER
611
10
600
CREEK
625
UNION
BM



LYELL
ROAD
GILLETT
SHEPARD
590
590
590
Gravel Pit
625
BROWER
RD
585
585
600
600
600
600
TTIER
ROAD
586
RD
HUTCHINS
580




LEGEND

STANDARD PROJECT FLOOD

INTERMEDIATE REGIONAL FLOOD

MILE POINT UPSTREAM FROM MOUTH (11)

FLOW ARROW

NOTES:

1. Map is a composite photo enlargement of New York U.S.G.S. 7.5 min. quadrangle sheet; Clifton. Minor additions and adjustments made by Corps of Engineers.
2. Limits of overflow indicated may vary some from actual location on ground as explained in this report.
3. Areas outside the floodway may be subject to flooding from local runoff.
4. Minimum contour interval is 5 feet.

SCALE IN FEET

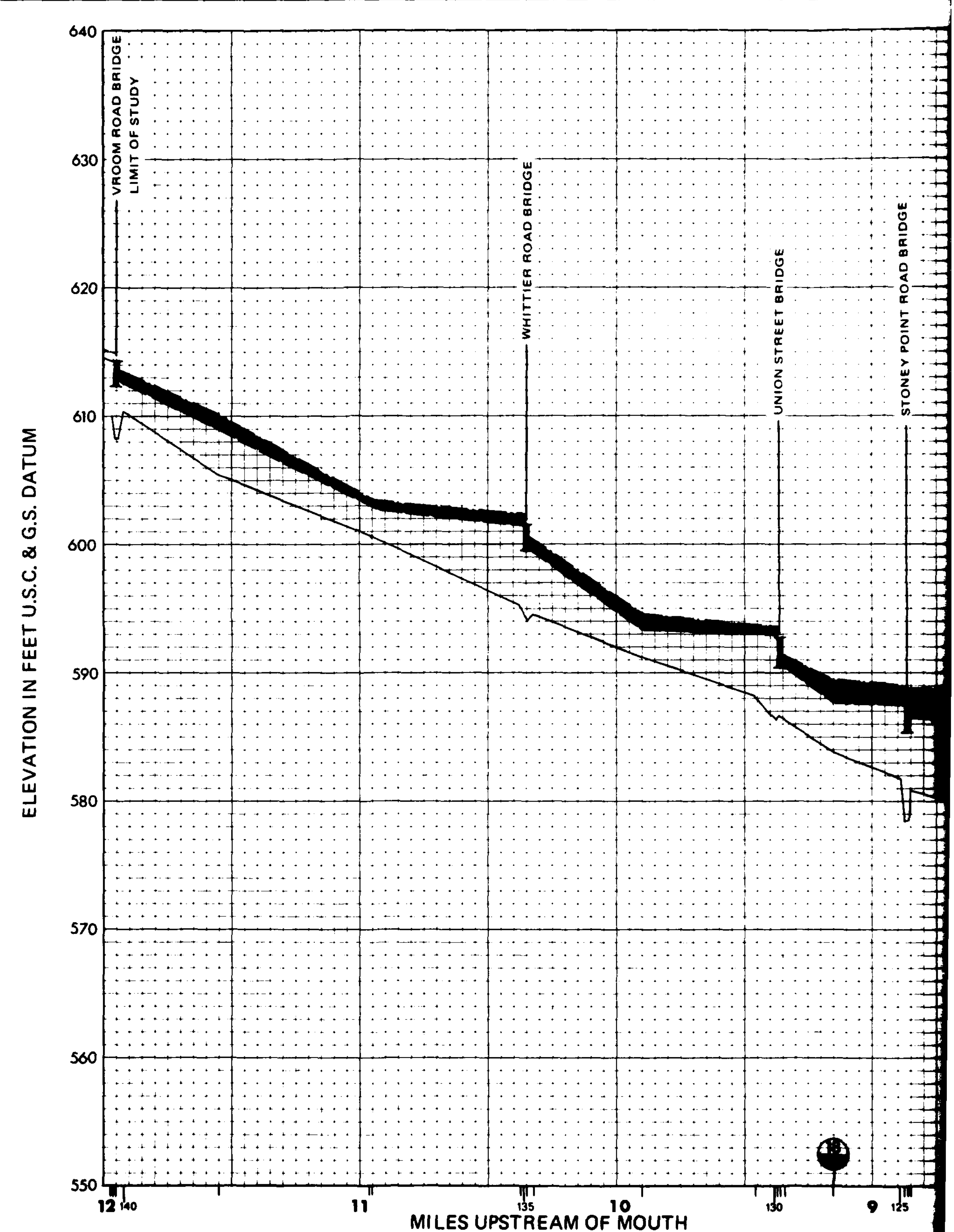
0 1000 2000

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
BUFFALO, NEW YORK

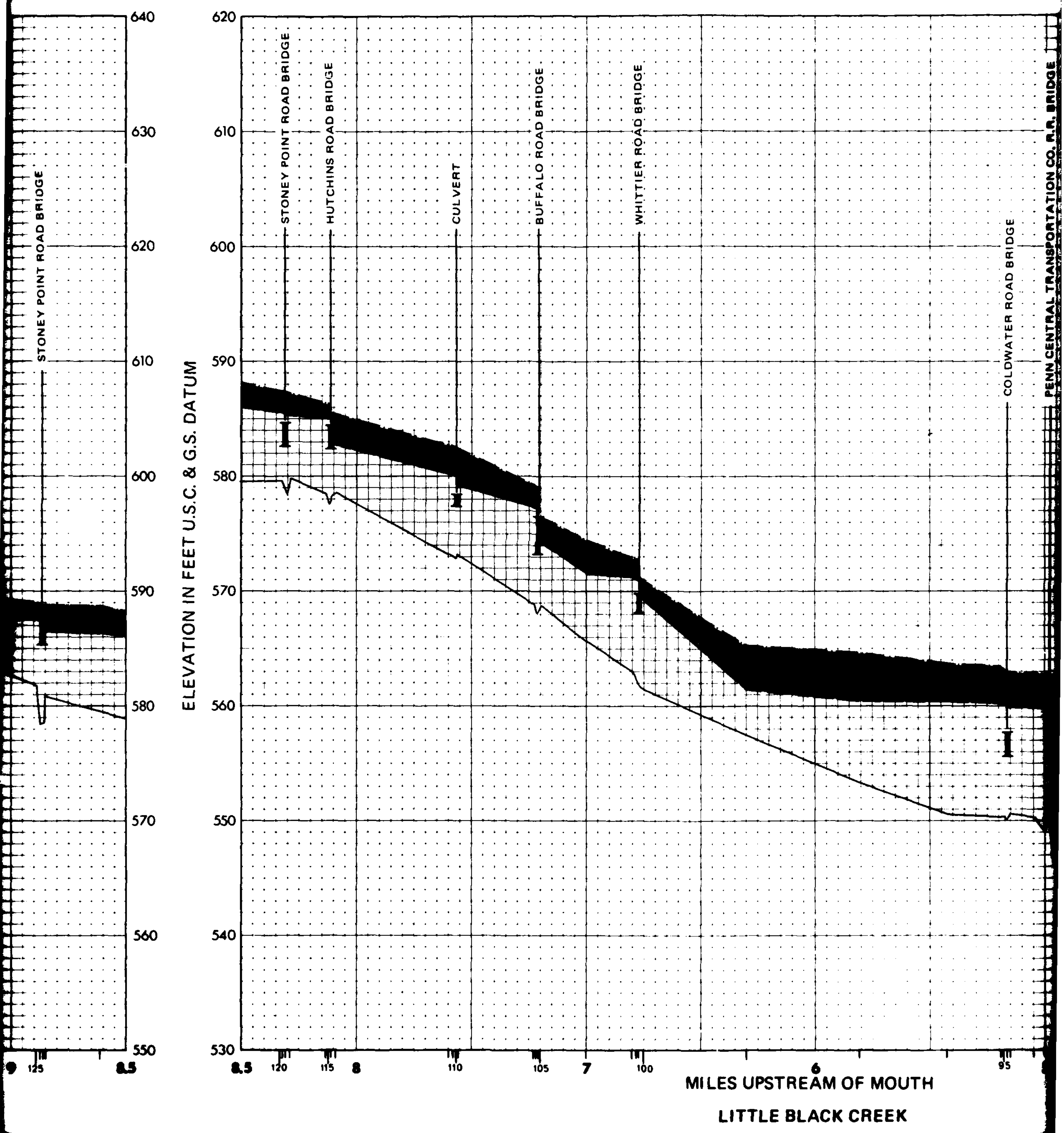
**FLOOD PLAIN INFORMATION**
**LITTLE BLACK CREEK**
**MONROE COUNTY, N.Y.**

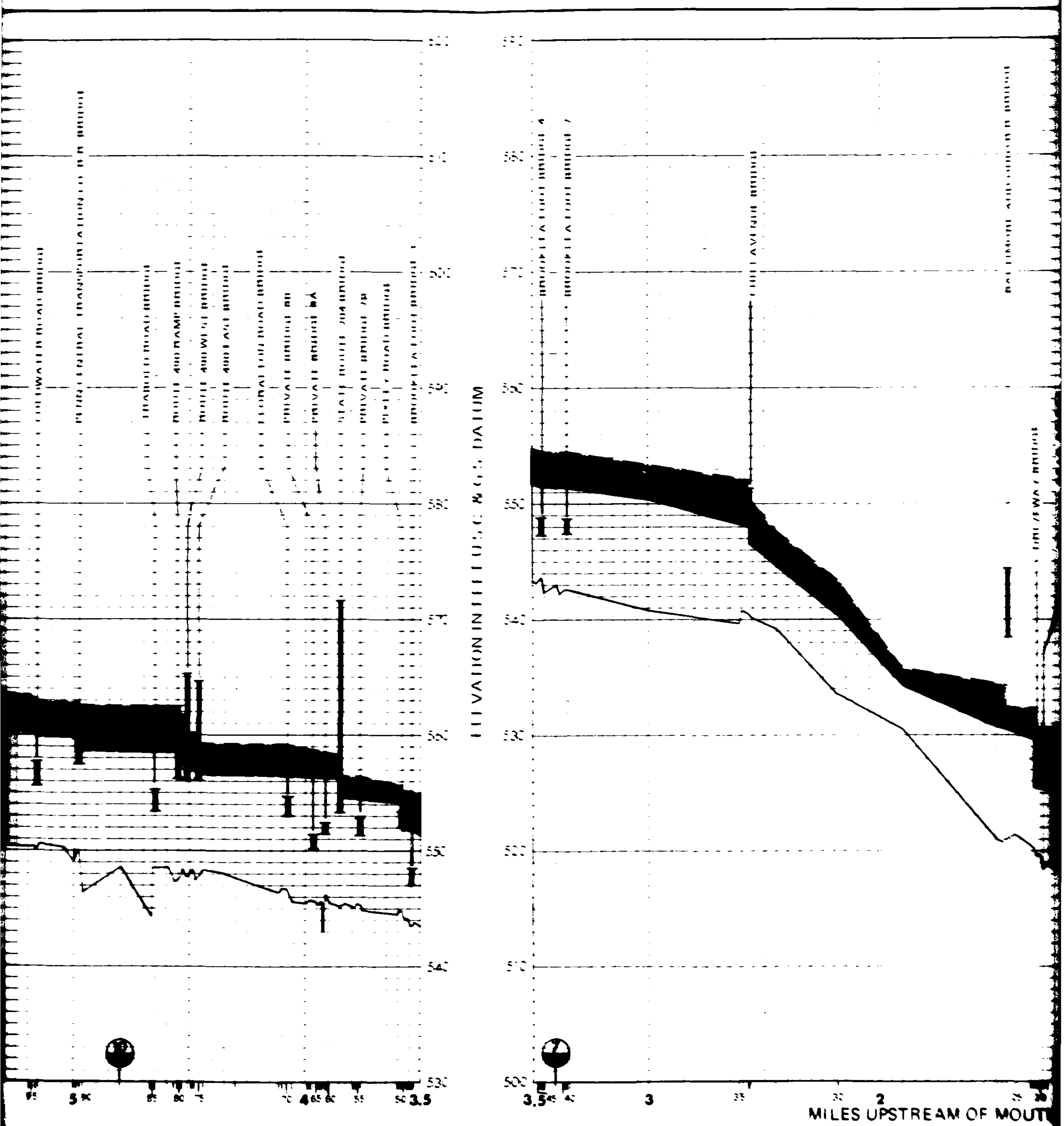
**FLOODED AREAS**

AUGUST 1975

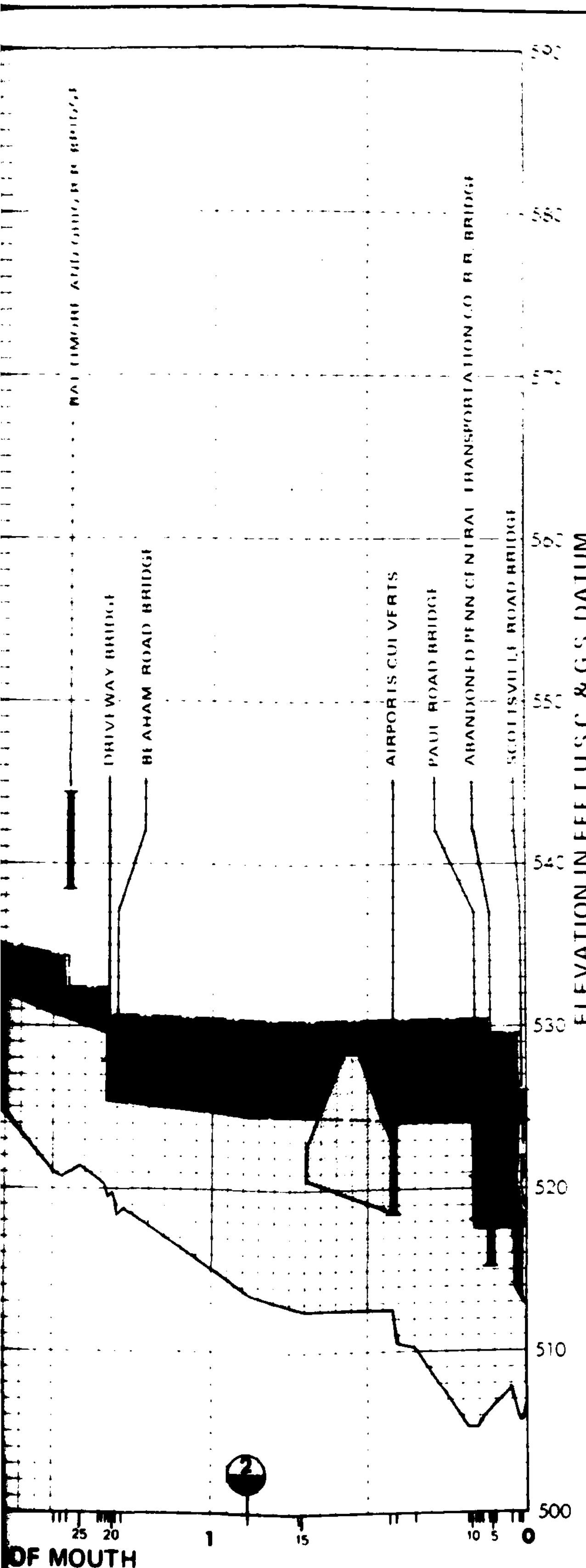


ELEVATION IN FEET U.S.C. & G.S. DATUM
640
630
620
610
600
590
580
570
560
550
VROOM ROAD BRIDGE
LIMIT OF STUDY
WHITTIER ROAD BRIDGE
UNION STREET BRIDGE
STONEY POINT ROAD BRIDGE
12
140
11
135
10
130
9
125
MILES UPSTREAM OF MOUTH


STONEY POINT ROAD BRIDGE
640
630
620
610
600
590
580
570
560
550
9
125
8.5
ELEVATION IN FEET U.S.C. & G.S. DATUM
620
610
600
590
580
570
560
550
540
530
STONEY POINT ROAD BRIDGE
HUTCHINS ROAD BRIDGE
CULVERT
BUFFALO ROAD BRIDGE
WHITTIER ROAD BRIDGE
COLDWATER ROAD BRIDGE
PENN CENTRAL TRANSPORTATION CO. R.R. BRIDGE
8.5
120
115
8
110
105
7
100
6
95
MILES UPSTREAM OF MOUTH
LITTLE BLACK CREEK



ELEVATION IN FEET U.S.C. & G.S. DATUM
MILES UPSTREAM OF MOUTH
5
4
3.5
3
2




LEGEND

STANDARD PROJECT FLOOD

INTERMEDIATE REGIONAL FLOOD

APPROXIMATE STREAM BED

APPROXIMATE FLOOR ELEVATION

APPROXIMATE LOW STEEL ELEVATION

CHANNEL CROSS SECTION

VALLEY CROSS SECTION

NOTES:

1. Crest profiles are based on the following:
   - Existing channel conditions
   - Existing structures
   - Existing conditions of development
   - No clogging at bridges
2. Large scale filling will raise profile unless sufficient floodway is provided.

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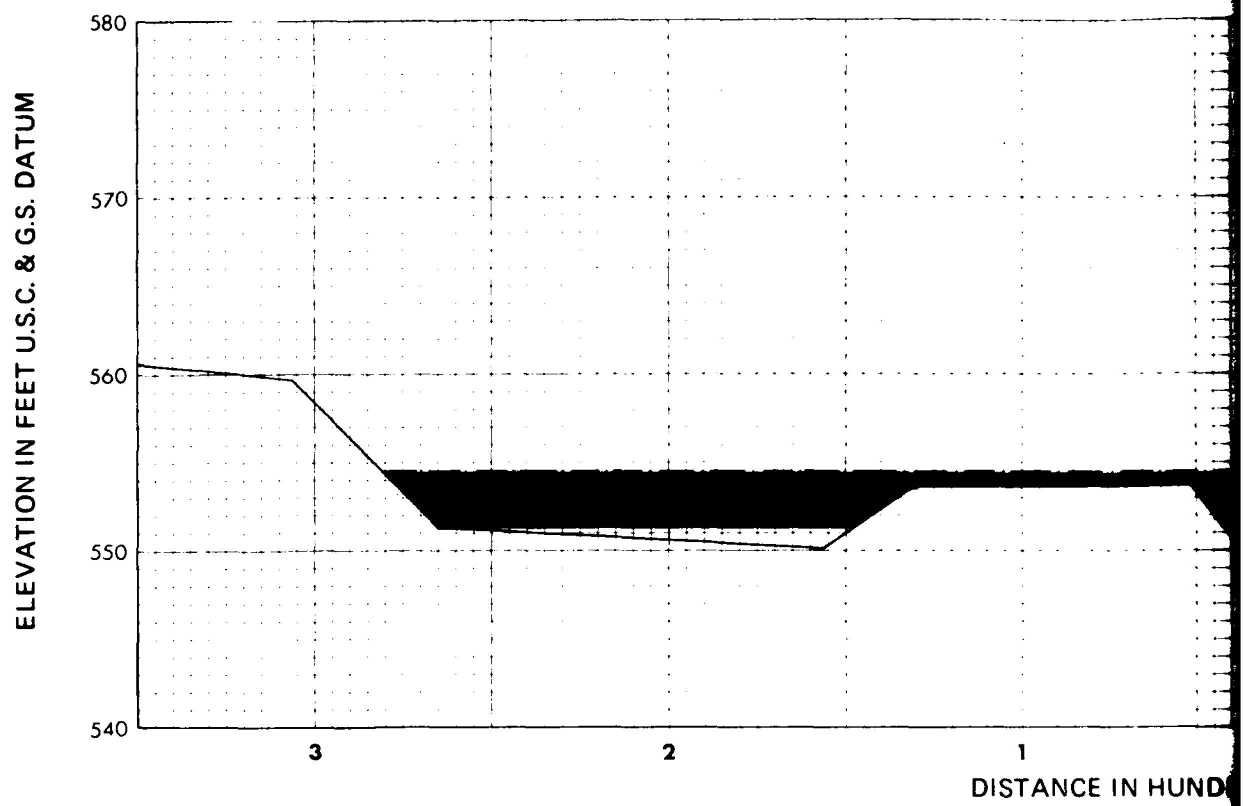
BUFFALO, NEW YORK

**FLOOD PLAIN INFORMATION**

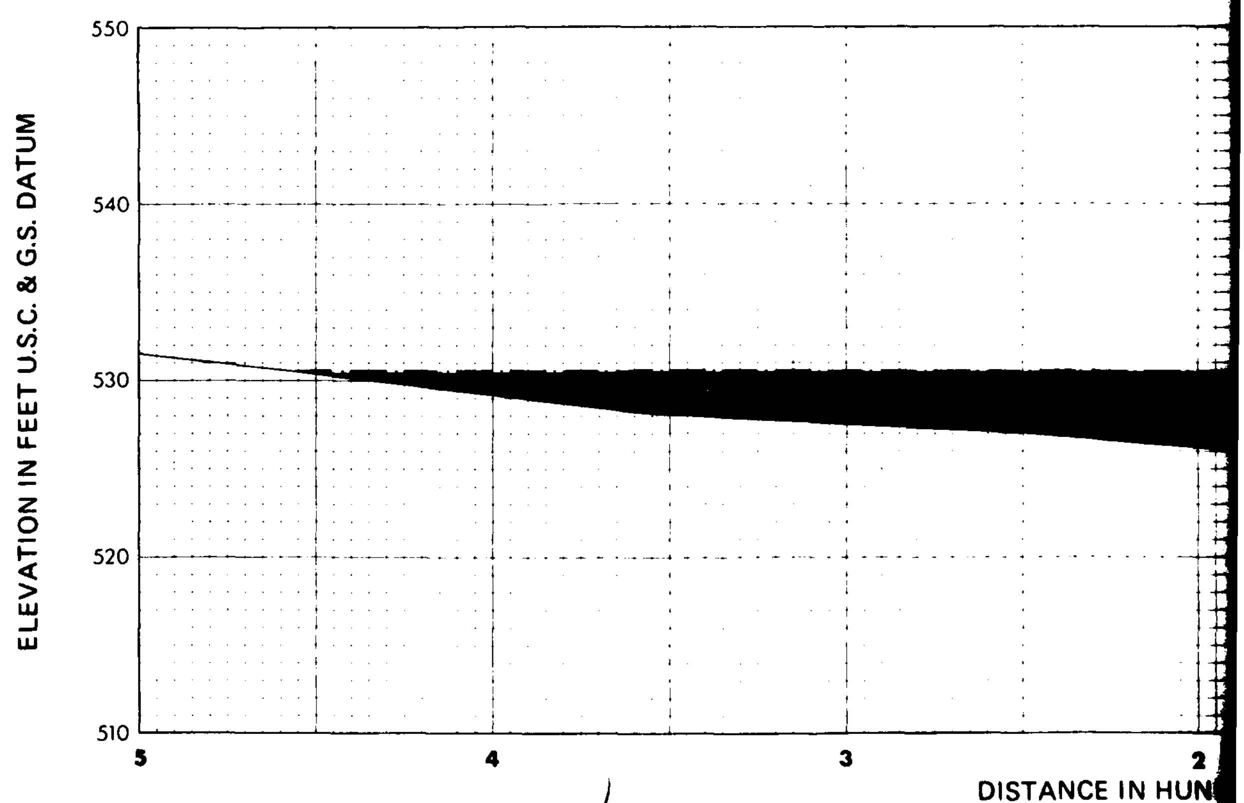
**LITTLE BLACK CREEK**
**MONROE COUNTY, N. Y.**

**FLOOD PROFILES**

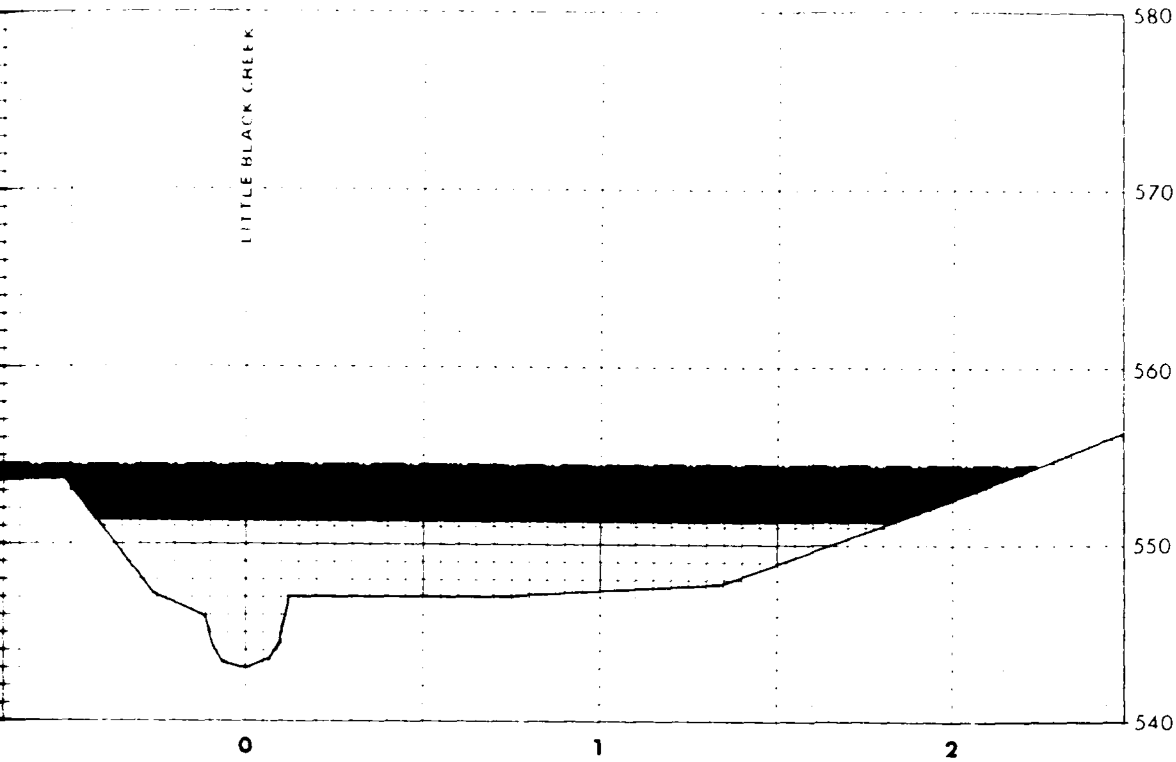
AUGUST 1975




CROSS SECTION NO. 7

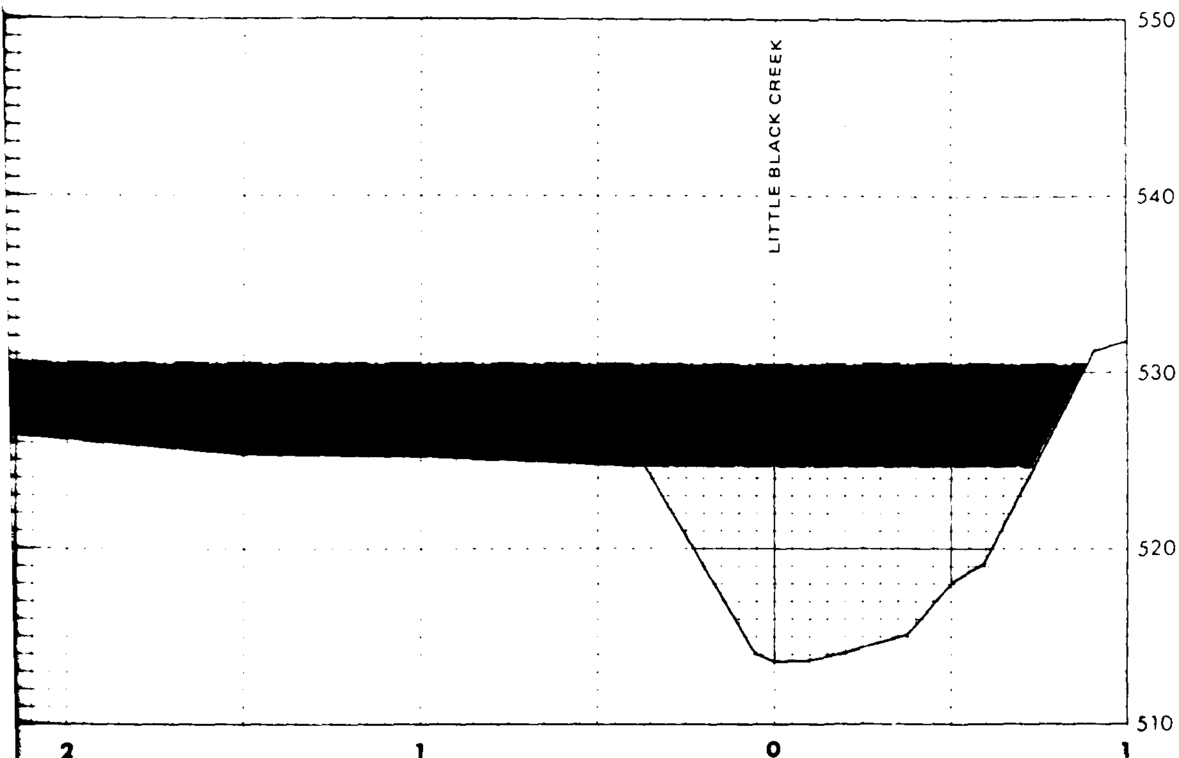



CROSS SECTION NO. 2




N HUNDREDS OF FEET

**MILE POINT 3.40**




HUNDREDS OF FEET

**MILE POINT 0.88**

LEGEND

STANDARD REGIONAL FLOO

INTERMEDIATE REGIONAL FL

APPROXIMATE GROUND SURF

NOTES:

1. Valley cross sections are b surveys and U.S.G.S. quadr
2. Valley cross sections are k and are located on plate nu

DEPARTMENT OF TH
BUFFALO DISTRICT, CORPS
BUFFALO, NEW Y

**FLOOD PLAIN INFO**
**LITTLE BLACK**
**MONROE COUNT**

**VALLEY CROSS S**

AUGUST 197

AL FLOOD

IONAL FLOOD

UND SURFACE

tions are based on actual field
.G.S. quadrangle maps.
tions are looking down stream
n plate numbers 5 and 4.

IENT OF THE ARMY
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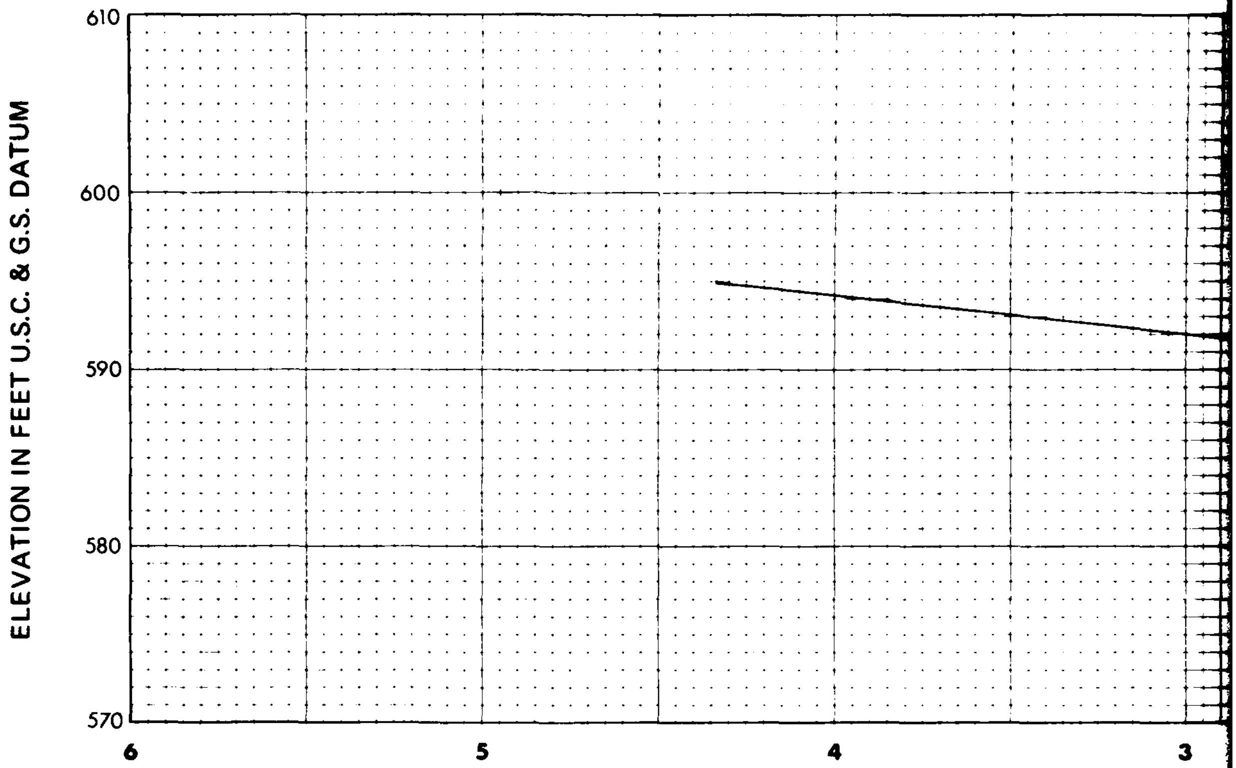
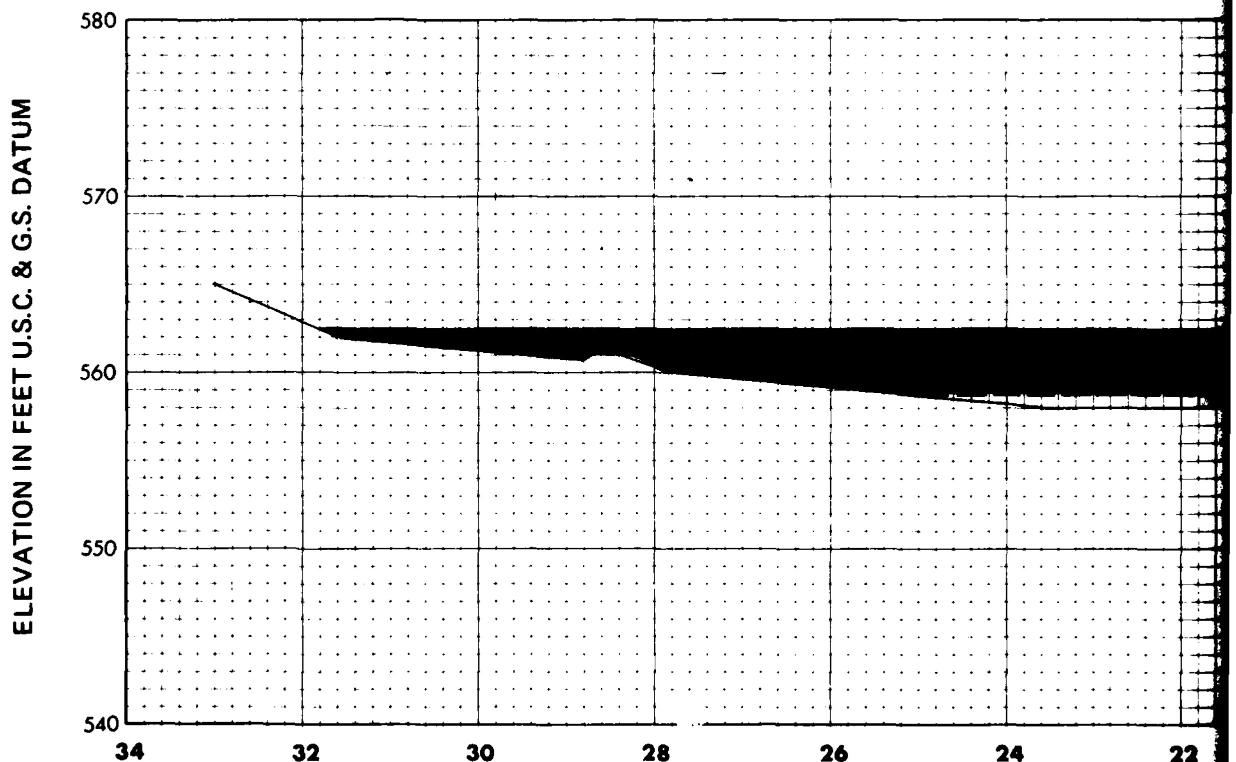
**AIN INFORMATION**
**BLACK CREEK**
**COUNTY, N. Y.**

**CROSS SECTIONS**

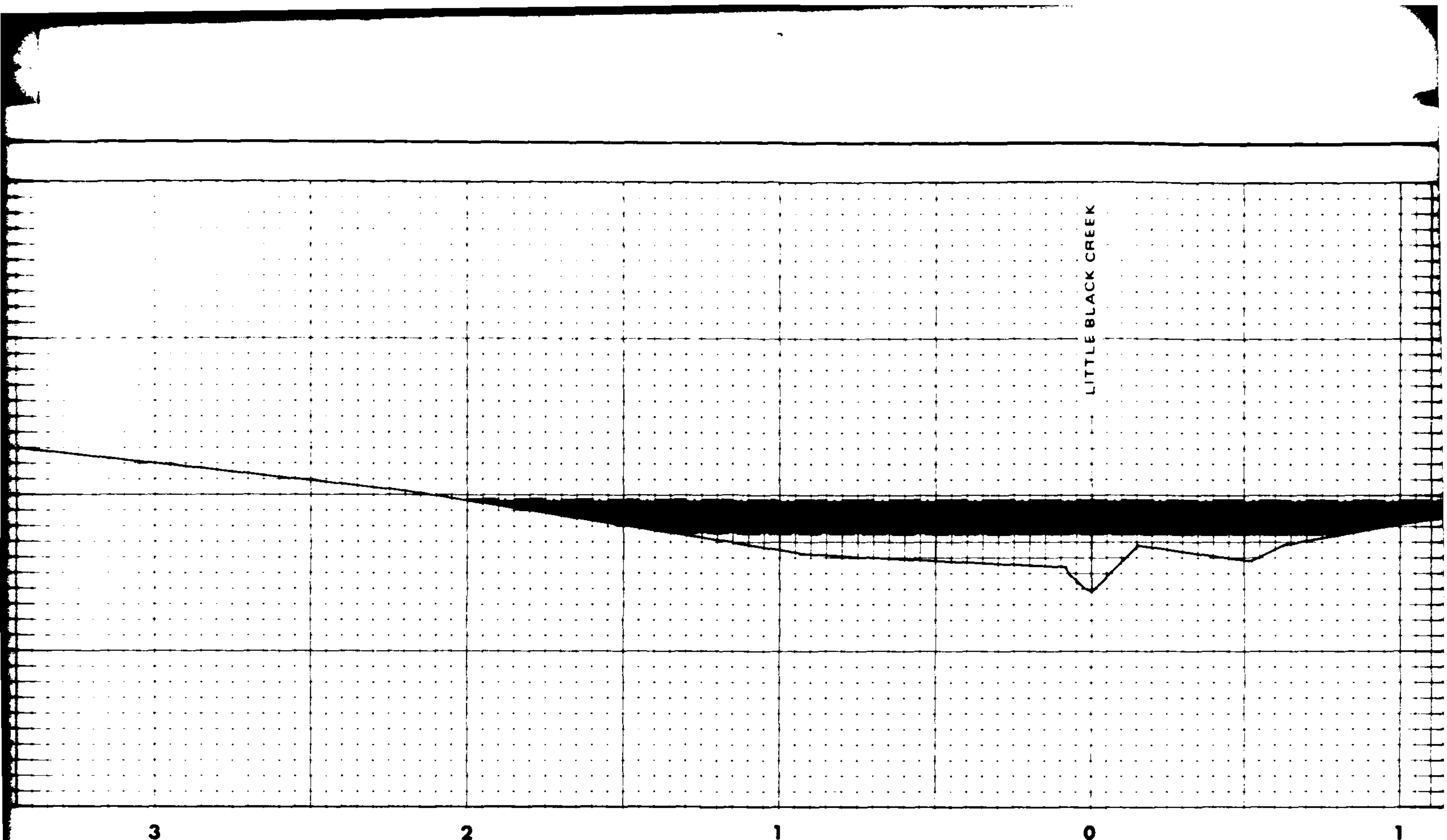
AUGUST 1975



ELEVATION IN FEET U.S.C. & G.S. DATUM
610
600
590
580
570
6
5
4
3

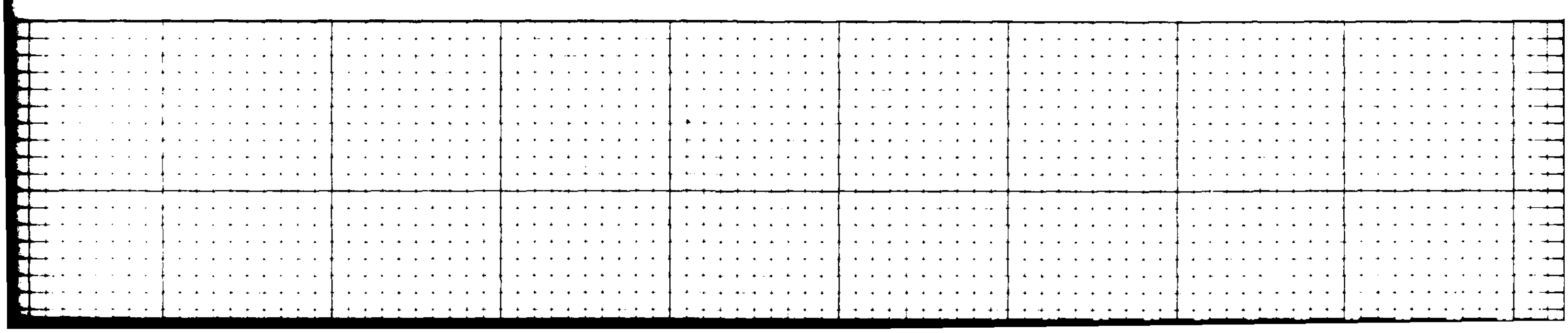



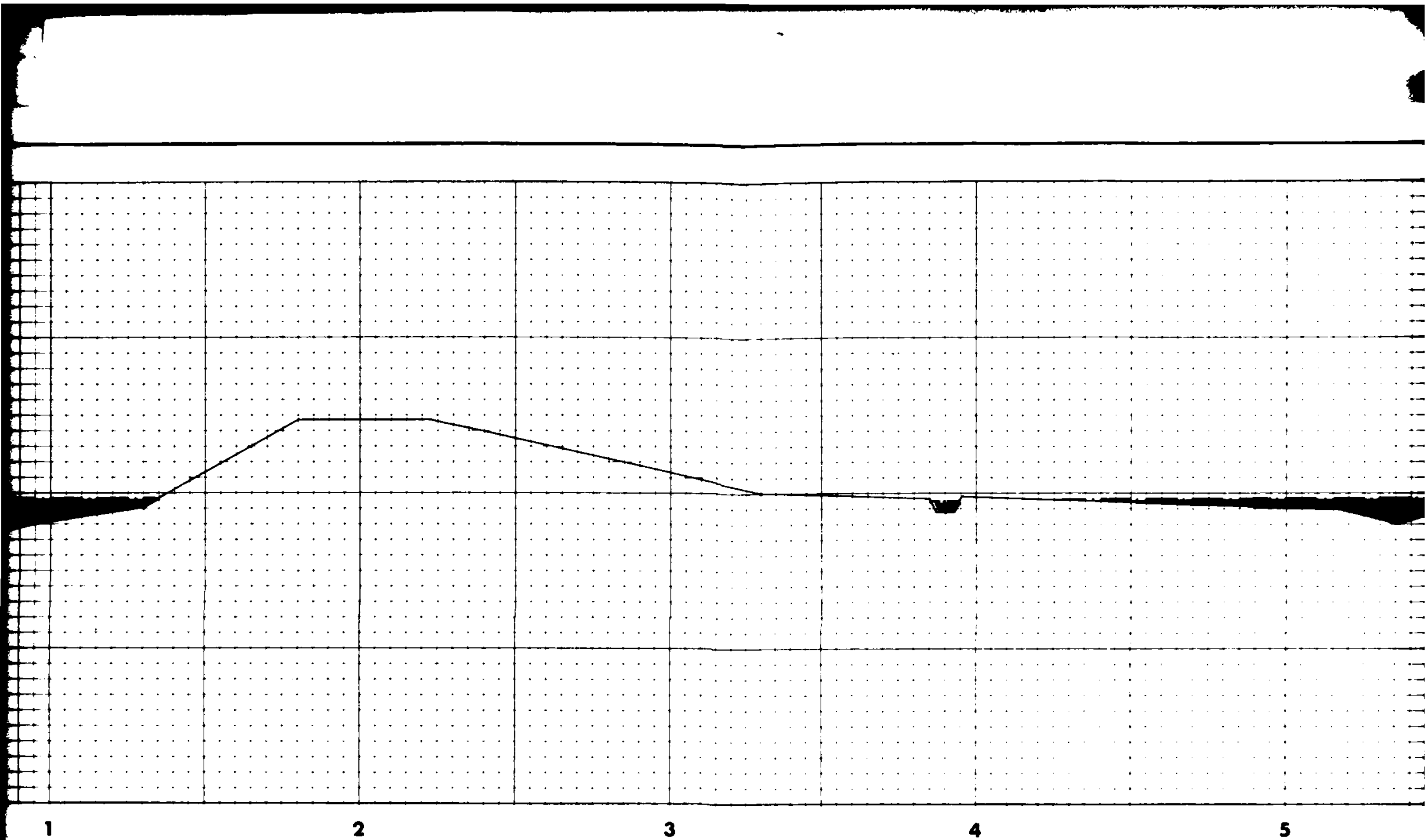
ELEVATION IN FEET U.S.C. & G.S. DATUM
580
570
560
550
540
34
32
30
28
26
24
22




DISTANCE IN HUNDREDS OF FEET

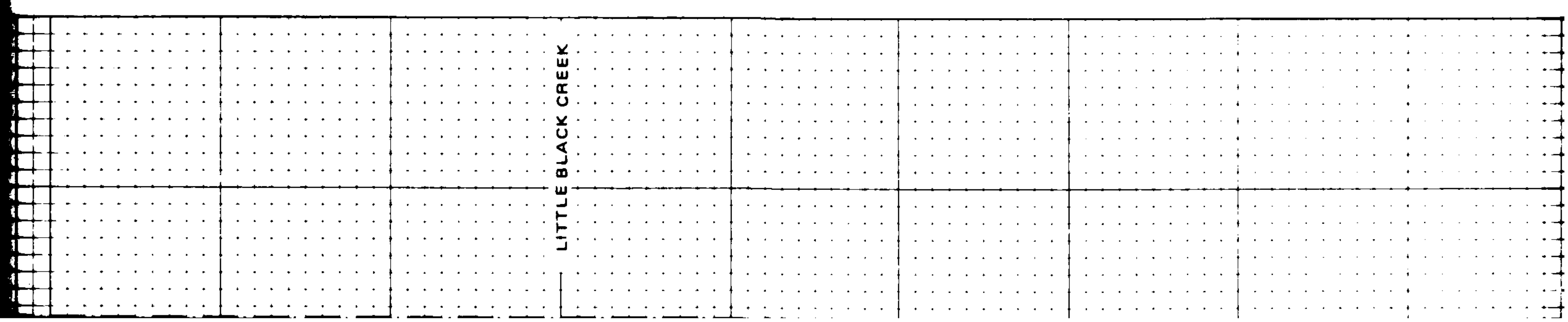
CROSS SECTION NO. 18 MILE PC

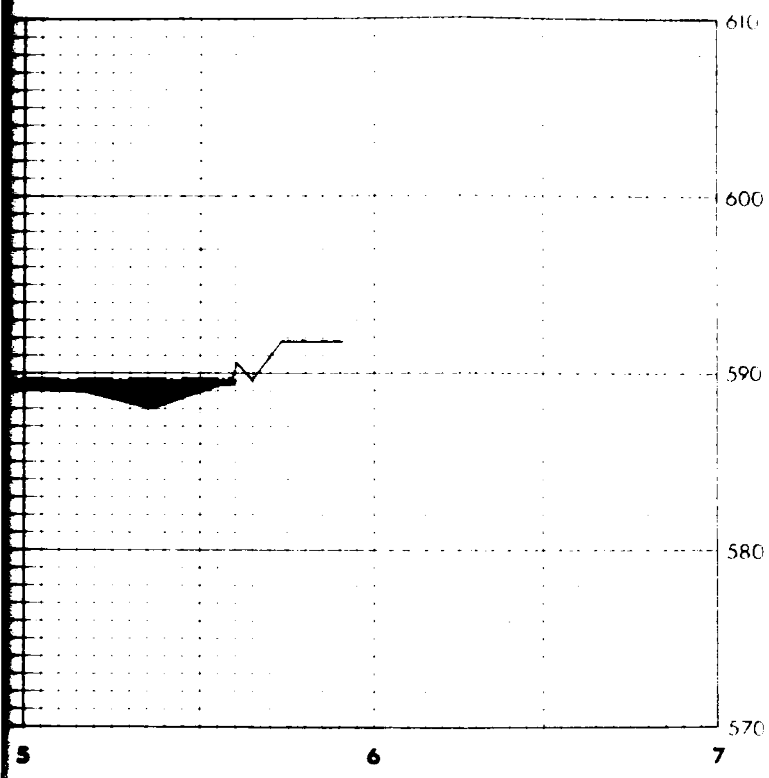


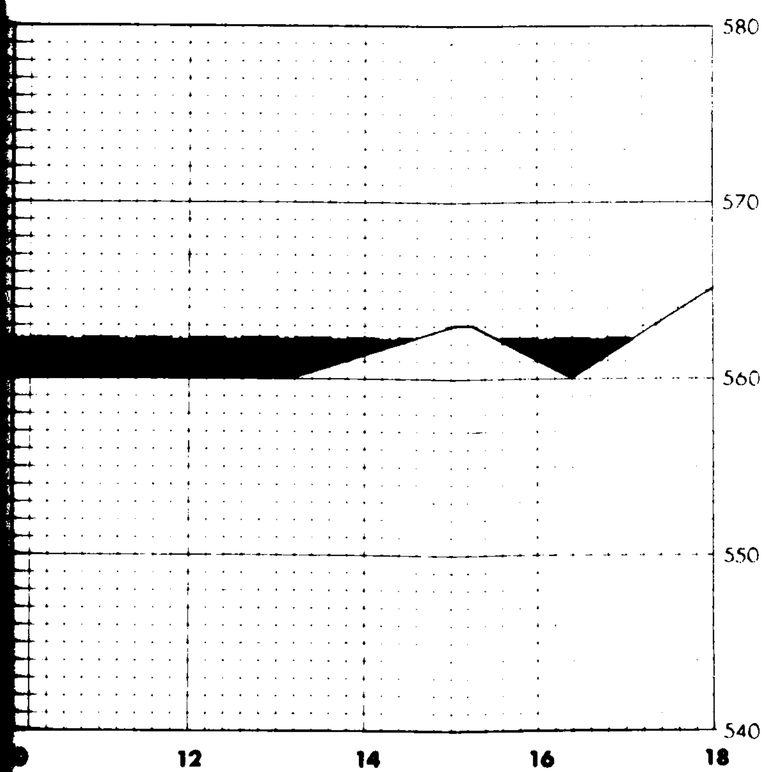



F FEET

ILE POINT 9.15






## LEGEND

STANDARD REGIONAL FLOOD

INTERMEDIATE REGIONAL FLOOD

APPROXIMATE GROUND SURFACE

## NOTES:

1. Valley cross sections are based on actual field surveys and U.S.G.S. quadrangle maps.
2. Valley cross sections are looking down stream and are located on plate numbers 6 and 5.

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
BUFFALO, NEW YORK

**FLOOD PLAIN INFORMATION**

**LITTLE BLACK CREEK**
**MONROE COUNTY, N. Y.**

**VALLEY CROSS SECTIONS**

AUGUST 1975